TECHNOLOGY DEPT.

FLIGHT MAGAZINE

FEBRUARY 1954
35 cents

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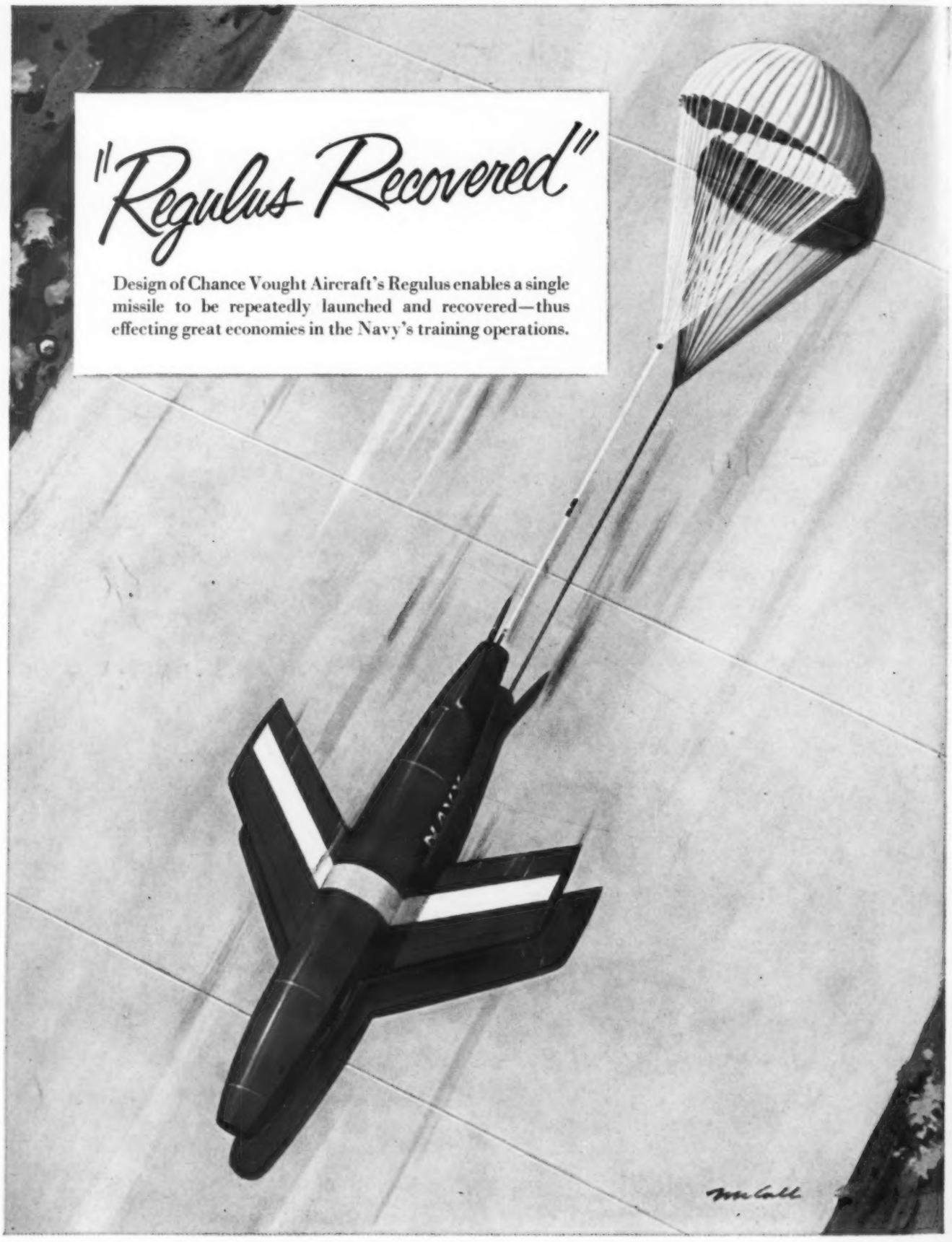
FEB 15
DETROIT

RILEY TWINS OVER FLORIDA KEYS

(See page 24)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RELIABLE ENGINES

They're flying on top of the world

Allison's service representative on assignment with the 318th Fighter-Interceptor Squadron at Thule Air Base didn't know he was writing an advertisement when he sent the following report—but we think you'll be interested in these comments from northern Greenland:

"I am sending a few pictures taken at Thule shortly before old Sol set for its last time here in the Arctic. I am sure that these pictures will be of interest—with a caption indicating satisfactory performance of the Allison J33 engine even in these adverse conditions, some 800 miles from the geographic North Pole, and almost due east of the magnetic pole.

"The Air Echelon overseas movement of the 318th with Lockheed F-94B's was made from McChord Air Force Base, Washington to Thule. This move, made without incident, indicates not only the pilots' capabilities and outstanding maintenance of equipment, but also the rugged dependability of the J33 engine. During the first four months of operation here, even with the onset of the Arctic night and extreme temperatures, this squadron is still logging hundreds of hours of combat-ready flight a month.

"I believe it would be quite fitting for Allison to indicate its appreciation of the Squadron's unrelenting confidence in the J33 engine and its prolonged effort toward making jet fighter operations both possible and practical in the far northern reaches of the globe."

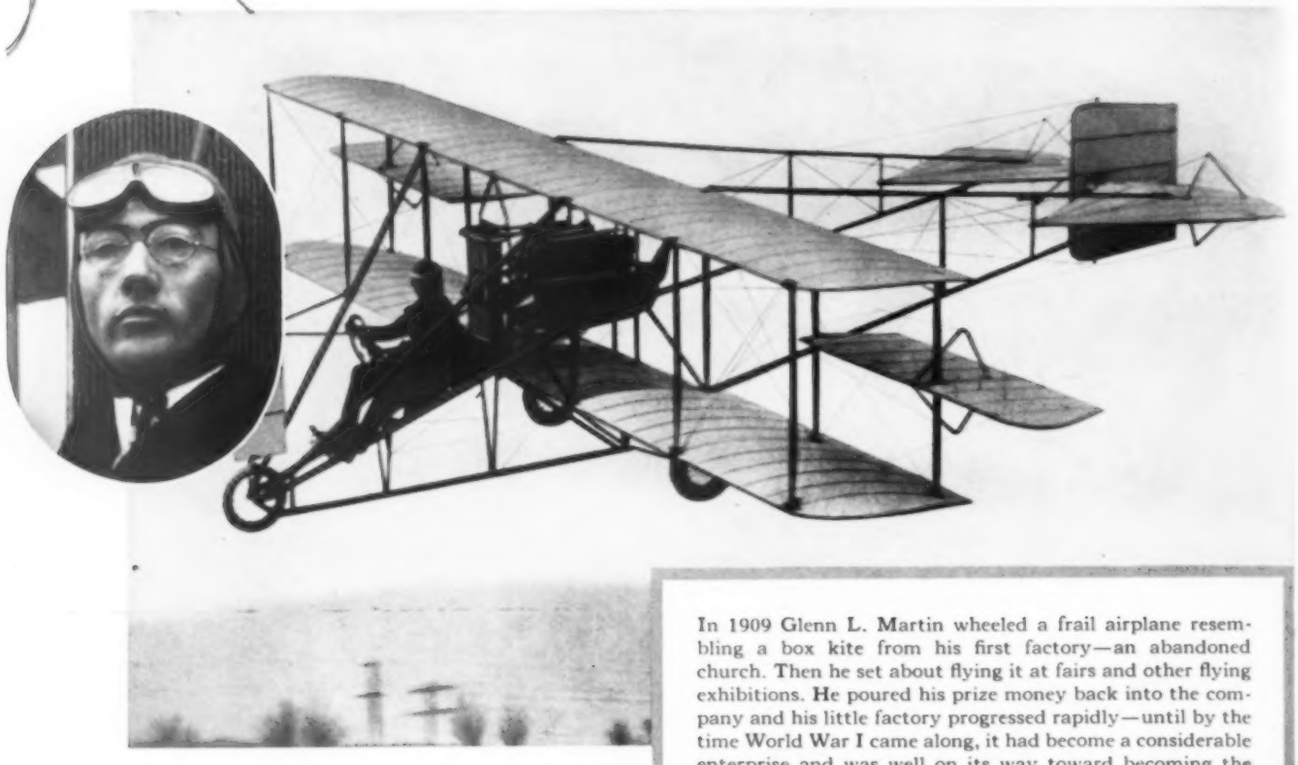
Allison greatly appreciates this opportunity to salute the 318th Squadron of the Northeast Air Command for its splendid record in maintaining vigilant guard at the top of the world.

GM GENERAL MOTORS

Allison DIVISION OF GENERAL MOTORS, INDIANAPOLIS, INDIANA

World's most experienced designer and builder of aircraft turbine engines—J35 and J71 Axial, J33 Centrifugal Turbo-Jet Engines, T38 and T40 Turbo-Prop Engines

Box Kites to Pilotless Bombers—
1909-1954



In 1909 Glenn L. Martin wheeled a frail airplane resembling a box kite from his first factory—an abandoned church. Then he set about flying it at fairs and other flying exhibitions. He poured his prize money back into the company and his little factory progressed rapidly—until by the time World War I came along, it had become a considerable enterprise and was well on its way toward becoming the mighty manufacturing unit it is today.

THE MARTIN B-61 'MATADOR' pilotless bomber is one of the latest Martin developments. Flying is done by electronic controls and power is provided by a high speed turbo-jet engine. Carrying an explosive load, the Matador is a pilotless bomber and is guided by remote control to its target.

● Just as in the past—future improvements in design, speed and endurance of planes will be matched by equally important developments in aviation fuels.

Phillips Petroleum Company will continue to contribute to this progress according to the very latest demands of the aviation industry.

As one of the nation's largest suppliers of dependable aviation products for commercial and military use in all ranges of flight, Phillips is ready today with fuels for the latest turbo-props and jets . . . in addition to their tremendous capacity for producing 115-145 grade aviation gasoline.

Rely on Phillips for dependable aviation products!

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PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Phillips 66

AVIATION PRODUCTS

AIR Report
Significant Trends and News

CESSNA'S $12,094,000 IN BILLINGS AND PIPER'S 1,839 AIRPLANE SHIPMENTS led the lightplane industry in 1953, according to the latest tabulation by the Aircraft Industry Association's Personal Aircraft Council. Airplane shipments by 7 manufacturers totalled 3,788 in number and $34,458,000 in billings, with manufacturers' 1953 shipments as follows:

	No.	Billings
AERO DESIGN		
Aero Commander	69	$ 4,260,000
BEECH		
Bonanza 312; D18 60; Twin-Bonanza 3	375	$ 9,545,000
CALL AIR		
S1B1 1; S1-A90-C 1	2	$ 7,000
CESSNA		
140A 2; 170B 663; 180 644; 190 7; 195 116; 305A 2	1,434	$12,094,000
MOONEY		
M-18	37	$ 91,000
PIPER		
Super Cub 700; Pacer & Tri-Pacer 1,139	1,839	$ 8,286,000
TAYLORCRAFT		
Tourist 15A 27; Sportsman 19 5	32	$ 175,000
Totals	3,788	$34,458,000

NYLON DE-ICING BOOTS FOR WING AND TAIL AND ANTI-ICING PROPELLER SLINGER RINGS are being perfected as optional equipment for Cessna's new light twin.

CHARLES E. (CHUCK) BEARD has been elected president of Braniff International Airways following the death of **T. E. Braniff** last month. **Bill Miller** moved up to become executive vice president and **Claude G. Adams** was re-elected secretary-treasurer. Mr. Braniff was among 12 fatalities in the loss of a United Gas transport near Shreveport, La., in heavy icing conditions.

AL W. MOONEY has been elected president of Mooney Aircraft, Inc., Kerrville, Texas, following the death of **Charles G. Yankey** of Wichita, Kansas, principal stockholder and founder of the firm. **Paul G. Yankey,** brother of the deceased, was elected chairman and **Art Mooney** was re-elected secretary. Mooney Aircraft is undergoing re-financing in anticipation of producing the new Continental-145 M-20 4-place high-performance design now in static and flight testing. The firm's backlog of commercial orders is now more than $2,000,000.

FIRST PRODUCTION MODEL OF A NEW CEILOMETER which provides accurate ceiling measurements by radar every 6 seconds has been placed in operation at Greater Fort Worth International Airport by the U. S. Weather Bureau. Test models have been in use at LaGuardia Field

(Continued on page 35)

AERO COMMANDER OPERATION AS CARGO CARRIER is pictured here with the fast light twin unloading a 1,500-lb. cargo flown 850 miles nonstop out of a 2,600-ft. strip at Piqua, Ohio, to the Aero Commander factory in Oklahoma City. The cargo consisted of 10 new Hartzell constant-speed, quick-feathering propellers and 17 cases of accessories. Rear seats attached by Wedjits were quickly removed to provide 100 cu. ft. of cargo space. The Aero Commander floor is only 19 ins. off the ground for easy handling of cargo loads.

—(Aero Design Photo.)

FLIGHT MAGAZINE

Including SOUTHERN FLIGHT and MODERN AIRPORTS

FEBRUARY, 1954 VOL. 41, No. 2

COVER: Three of the improved new Riley Twin Navion Conversions, powered by twin 150-hp. Lycoming engines and equipped with Hartzell constant-speed, quick-feathering propellers. The new version has 3,350-lb. gross weight, 2,300-lb. empty weight and 1,050-lb. useful load. They are in production at Temco Aircraft's Greenville (Texas) plant with Riley Aircraft Sales as exclusive sales agent.

—(FLIGHT MAGAZINE Photo.)

Air Report—SIGNIFICANT TRENDS AND NEWS - - - - - - 7

Just Among Ourselves—EDITORIALS: WHICH ROAD WILL WE TAKE?; THE PIONEERS PASS ON; A GOOD IDEA - - - 13

Super 18 Tops Beech Line—TWO BONANZA VERSIONS AND TWIN-BONANZA PRODUCTION ALSO ANNOUNCED - - 16

Cessna's New Model 310—PRODUCTION BEGINS ON 205-MPH., $49,950 TWIN - - - - - - - - - 20

Going Places—BY TOM ASHLEY—FIVE RILEY TWINS ON A WINTER HOLIDAY IN FLORIDA - - - - - - - - 24

Versatile Missile—HOW THE NAVY RECOVERS THE CHANCE VOUGHT REGULUS - - - - - - - - 32

Airmen's Calendar—COMING EVENTS - - - - - - - 38

Questions and Answers for Airport Operators - - - - 47

GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager, P. O. Box 750 (1901 McKinney Ave.), Dallas, Texas—Telephone STerling 2125.

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P7-B—Guide Surface Personnel Parachute. Equipped with manual ripcord release and Pioneer "Quick-Fit"* Harness.

P-T-10—Latest type parachute for Paratroops—has a 35-foot diameter canopy and is equipped with the Pioneer "Quick-Fit"* Harness.

Flexible P3-B Back-Pack Parachutes—thousands in use by the U.S. Air Forces and other governments, test pilots, leading aircraft manufacturers.

All Pioneer Parachutes are equipped with the exclusive "Quick-Fit"* Harness. Provides perfect fit in less than 3 seconds; allows free movement.

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for every plane . . . for every purpose!

Everywhere you look in the field of parachutes — Pioneer is pre-eminent in the vanguard of aviation progress. Aviation authorities have hailed the P7-B Guide Surface Personnel Parachutes as the most significant new design in life-saving parachutes for jet-plane speeds.

From Military Chutes for paratroop training and paratroop use to Ribbon Chutes that act as brakes for jet planes; and from the smallest chute for recovery of instruments from guided missiles to the largest 250-foot Cargo Chutes that deliver heavy cargoes to any spot in the world, however inaccessible, Pioneer's unparalleled know-how in design and manufacture has produced parachutes with a world-wide record for positive performance.

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4 major developments in TEMCO's rapid growth

PRODUCTION — TEMCO early built a reputation for airframe production of high quality, on schedule, at lowest possible cost. In its Dallas and Garland plants, TEMCO is producing major components for Martin, Lockheed, Consolidated, Beech, McDonnell and Boeing. One current subcontract is Boeing B-47 Stratojet tail assemblies, shown above

OVERHAUL — Another major TEMCO activity has been aircraft overhaul and modification for the armed services. Today, assembly-line rehabilitation of multi-engine aircraft is an important, growing service both at the Dallas and Greenville plants. A current project at the Greenville plant is the Air Force C-97 Hospital Ship conversion, illlustrated above.

BASIC DESIGN — In recent years, TEMCO has placed additional emphasis on new design of its own. New military aircraft such as the Model 33 PLEBE trainer, illustrated above, now being evaluated by the U. S. Navy at Pensacola, Florida, are evidence of the company's development policy.

RESEARCH AND DEVELOPMENT — TEMCO'S expanded engineering staff is working on many new military aircraft projects of advanced scope. Modern facilities, such as the well-equipped engineering research laboratory above, help TEMCO designers solve complex military aviation design problems.

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AIRCRAFT CORPORATION
DALLAS, TEXAS

Plants at: DALLAS • GARLAND • GREENVILLE

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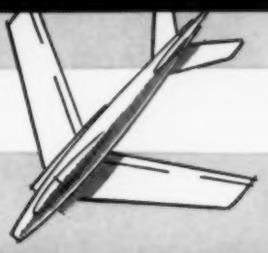
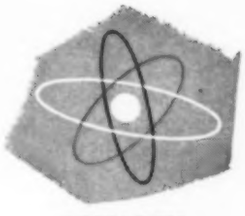
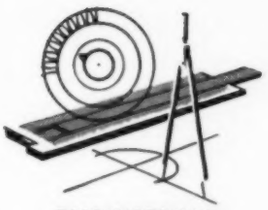


LEADER IN LANDING GEAR

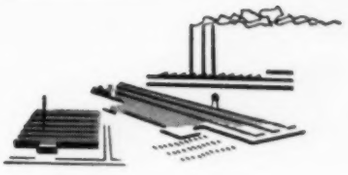
BENDIX BUILDS BEST!



RESEARCH



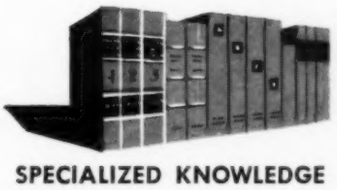
ENGINEERING



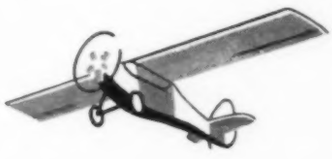
MANUFACTURING

SERVICE

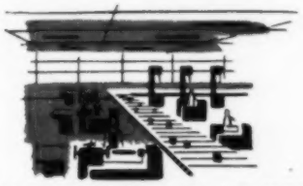
FINANCIAL STABILITY



SPECIALIZED KNOWLEDGE



PREVIOUS ACCOMPLISHMENTS



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The fact that Bendix Products Division of the Bendix Aviation Corporation has specialized for more than thirty years in two highly technical phases of aviation—fuel metering and landing gears—makes this organization unique in the industry.

During this unparalleled record of service in engineering and manufacturing of vital aircraft components, every resource and facility of Bendix Products has been constantly expanded to meet the challenges of new plane and engine design. Bendix Products has done far more than just keep pace with the industry. It is no exaggeration to state that in instance after instance in the fields of fuel metering, landing gears, wheels and brakes, Bendix sets the pace by developments making possible greater speeds, heavier loads and increased safety.

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Model

PERFORMANCE!

Props getting senile? Losing their zest for life at the business end of your airplane? Appearance, as well as performance, dreary and uninspired? If so, the answer is a CAA-approved, Hamilton Standard-authorized Rejuvenation by the Southwest Airmotive propeller shop! Why not let your props become mirror-finish Smoothies like the DC-3 23E50 shown here making time with lusciously-long-stemmed Anita Schlumpberger (21, 5'6½", 130 lbs., blonde, hazel-eyed)? Large or small, propellers operate with youthful vigor and dependability after overhaul at SAC, for 22 years Propeller Service Capitol of the Western Hemisphere.

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Just among ourselves

EDITORIALS

WHICH ROAD WILL WE TAKE?

THE ever-expanding fleet of airplanes used by U. S. businessmen since the end of World War II can boast of being one of the safest forms of domestic transportation. The growing acceptance of business airplanes by successful executives in almost every phase of American business has come about largely from this impressive safety record, which in turn was made possible by better-engineered airplanes, engines, accessories, navigational aids, exceptionally competent pilots and dependable maintenance facilities.

Only two factors can possibly arise to jeopardize the continued healthy growth of executive air transport; one of these is adverse economic conditions and the other is an adverse trend in the accident curve. While commercial aviation enterprise can do little about the nation's economy, much can and must be done in the matter of safety. The rash of accidents which has plagued this branch of aviation during the winter months is beginning to hurt business airplane sales and utilization more than most people will admit. The fact that passenger-mile safety records as compiled by actuarial experts have not been too adversely affected does not make the recent fatal crashes more palatable to the potential user of business airplanes.

We can no longer shut our eyes to the unpleasant impact of accidents on all forms of air transportation. And there is no need to ignore them since the accidents themselves hold the key to the solution. Most of them occurred in bad weather and nearly all of them should not have occurred at all. Even though weather is involved in most executive airplane accidents there are always other conditions and circumstances that help pave the way for lurid newspaper headlines — pressure on pilots to fly when their own judgment would cancel out; mediocre weather information or failure to use the information available, just to name a few. The trouble is we never get the facts, at least until it's too late to put the facts to good use.

Since the wheels at CAB and CAA turn too slowly in producing beneficial results from accident analysis it's high time the people whose business is at stake quit playing ostrich and start doing something themselves. The CAB and CAA can be of vital assistance, since they alone have the power of subpoena to produce witnesses and take sworn testimony. What commercial aviation needs is an independent agency, adequately staffed to work quickly and efficiently with CAA and CAB safety experts after each accident so that all known facts and conditions can be quickly and widely distributed to all concerned, including daily newspapers and trade journals. Even "probable" causes of accidents would be of great value if distributed within a few days or few weeks after the accident occurs. Otherwise we go blithely along with the newspaper, radio and TV accounts of the first forty-eight hours as gospel. Little wonder the majority of our people get the inference that airplanes fall mysteriously out of the sky, that wings fly off or airplanes explode in the air and consequently are inventions of the devil.

To go on ignoring the impact of accidents on commercial aviation progress is sheerest folly. Until we attack the problem as an all-industry problem the airplane will continue to be the scapegoat instead of the misuse of the airplane.

The pro-rata share of the cost of rapid, scientific and accurate accident reporting, if divided amongst all those involved, would be ridiculously low. The manufacturers, the trade and consumer associations, the major suppliers and especially the aircraft dis-

(Continued on page 34)

THE PIONEERS PASS ON

RECENT weeks witnessed the passing of many aviation leaders of national and even international fame, whose valuable contributions to aviation will long be remembered and recognized, whose loss will be felt for many years to come. Natural causes were responsible for the deaths of Dr. Albert Plesman, father of the great Dutch pioneer airline, KLM, and "dean" of international aviation; Major General Earl Ricks, of Hot Springs, Arkansas, whose faithful service to National Guard aviation and understanding of civil aviation's value to national defense will be sorely missed; Charles G. Yankey, of Wichita, Kansas, president of Mooney Aircraft, Inc., and financial backer of practically all of the pioneer Wichita airplane companies that years ago gave that city the title of "Aviation Capital of the World"; C. G. Grey, of England, founder of *The Aeroplane* magazine and former editor of *Jane's All the World's Aircraft*, a colorful aviation journalist of the era between the two world wars.

A tragic airplane accident was responsible for the untimely deaths of Tom Braniff, veteran airline executive, and Edgar Tobin, military pilot of World War I and owner of one of the largest aerial survey companies in the world. Braniff, who provided financial backing to his brother, Paul, founder of Braniff Airways 25 years ago with a single-engine Stinson operating between Tulsa and Oklahoma City, epitomized the scheduled airline leadership of the past two decades that gave this nation the finest air transport system in the world.

There is one cardinal attribute all of these diverse personalities in such varied fields of aeronautical interests had in common—vision. It is the one ingredient we seem to be losing as the years march on. It is the one great attribute of all truly great men whose thinking dominated the first fifty years of powered flight.

Younger men step up to take the place of those passing on. They can learn much from the lives and times of the pioneers from whose hands the grim reaper removes the helm of aviation's ship of state. ★ ★ ★

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A PLOT OF AIR HISTORY

The U.S. Navy tracks aircraft on a transparent board as radar reports their positions. Plot the most famous Navy and Marine fighter planes as reported by history, and Grumman aircraft fill the board.

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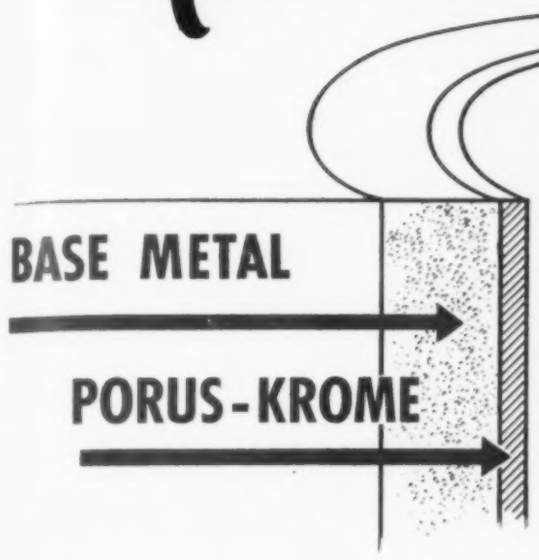
Reverse the Wear...



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* *PORUS-KROME is a dense, hard, wear and corrosion-resistant chromium, produced by the Van der Horst Corporation of America, and which gives working surfaces an infinite number of tiny oil-retaining reservoirs for perfected lubrication.*

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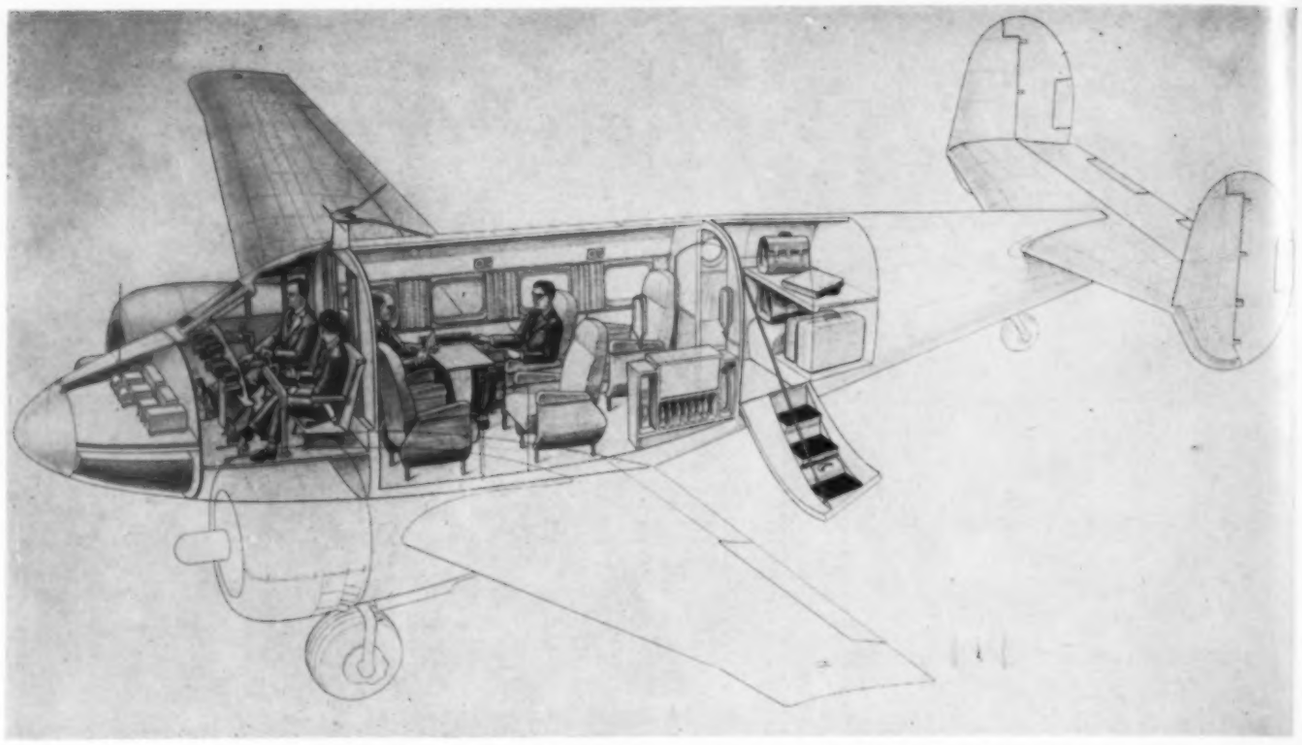
The effects of wear on expensive, machined parts — such as aircraft cylinders — can be reversed. By Van der Horst processing, even badly worn cylinders recover their original dimensions. Then, instead of wearing out again in the usual time, they last at least twice as long.

We use channel type PORUS-KROME* to accomplish this reversal. It has been proved and accepted by the armed services, and by air carriers. One of the latter finds the entire cost of each renewal is paid for by reduced lube oil consumption. This special chromium steps up engine efficiency!

Besides that, and a much better resistance to airborne abrasives, the costs of overhaul and spare parts are cut to a minimum. Even the rusting of cylinders — always a major menace of "low time" aircraft engine life — is counteracted by chromium.

One manufacturer now specifies PORUS-KROME cylinders as standard in all *new* engines —to make them *stay* new! For equal advantage, have Van der Horst "reverse the wear". W52-3A

TERRELL, TEXAS—VAN DER HORST CORP.—OLEAN, N. Y.



Cutaway sketch of new 215-mph. Beech Super 18 shows many improvements over D18S. Power plants are same Pratt & Whitney 450-hp. Wasp Juniors but have jet-exhaust stacks and paddle props. New wing tips add span and area. Cabin is larger, with more and larger windows. Note new stair-step door, built-in luggage rack, built-in refreshment bar. Price is under $100,000.
—(Beech Sketch.)

Super 18 Tops Beech Line

Two new Bonanza versions and full B50 Twin-Bonanza production announced

A "SUPER 18" version of the long-familiar Pratt & Whitney-powered twin-engine Model 18 light transport tops Beech Aircraft Corporation's line of commercial airplanes for 1954. Its sales companions will be the Lycoming-powered Model B50 Twin-Bonanza and two versions of a new E35 series of the popular 4-place Continental-powered Bonanza, one with 225 hp. for increased performance.

Biggest news in Beechcraft developments in recent years, the new line was unveiled late in January at the factory's annual distributor sales meeting in Wichita, Kansas. The impact was greater than factory officials had anticipated — within 4 hours distributors had placed $2,500,000 worth of orders for the new models in a spontaneous revival of sales enthusiasm. In addition, $1,000,000 worth of new planes which had been ordered earlier.

The stimulant proved to be the Super 18, a well-kept Beech secret which was underplayed in General Manager Jack Gaty's announcement of the development. He was almost casual about it, modestly explaining that the factory had refrained from any promotional build-up in offering it.

Significant basic improvements in the Super 18 indicate a superiority over Model 18's now in use sufficient to justify a large volume of replacement sales. The Model E18S Super's base price is just under $100,000. This is about $10,000 over the recently-increased price of the D18S, which makes it about $20,000 over last year's Twins.

The 215-mph. Super is 15 mph. faster and has more range than the D, although it has a 550-lb. greater useful load, a larger and far more comfortable cabin and other improve-

Preliminary Factory Data
Beechcraft Super 18

Power Plants: Two Pratt & Whitney R-985 AN-14B engines, each rated at 450 hp. at 2,300 rpm. METO and take-off power. Hamilton Standard Hydromatic propellers.

Gross Wt., lbs.	9,300
*Basic Operating Empty Wt., lbs.	6,150
Useful Load, lbs.	3,150
Top Spd., 5,000 ft., mph.	234
Cr. Spd., 600 hp. @ 47.5 gph., mph.	215 @ 10,000; 207 @ 5,000
Cr. Spd., 520 hp. @ 40.6 gph., mph.	204 @ 10,000; 197 @ 5,000
Cr. Spd., 480 hp. @ 37.7 gph., mph.	198 @ 10,000; 191 @ 5,000
Cr. Spd., 400 hp. @ 32.6 gph., mph.	182 @ 10,000; 177 @ 5,000
Rate of Climb, fpm.	1,250
Rate of Climb, 1 engine, fpm.	290
Rate of Climb, 1 engine @ 5,000 ft., fpm.	190
Svc. Clng., 2 engines, ft.	23,000
Svc. Clng., 1 engine, ft.	8,400
Take-off over 50-ft. obstacle, ft.	2,080
Landing over 50-ft. obstacle, ft.	1,570
‡Range @ 182 mph.— 10,000 ft., mi.	up to 1,455
‡Range @ 215 mph.— 10,000 ft., mi.	up to 1,120
Wing Loading, lbs./sq. ft.	25.75
Power Loading, lbs./hp.	10.32

***Empty weight includes residual fuel and average radio. ‡Range figures allow 45-min. reserve. In speeds, cruising hp. is for both engines. NOTE: All performance is for gross weight and sea level unless otherwise stated. This is preliminary factory data as of Jan. 29, 1954.**

ments. Beech factory performance and specifications, issued in "preview" form, are shown in the accompanying table.

Aside from performance gains, the biggest selling point appears to be the Super's new cabin. It has a higher ceiling for more head room, has more useable length and looks even larger, this effect resulting from larger windows and the addition of two more windows. A built-in baggage rack aft of the cabin solves a long-felt problem and a big rest room compartment gives both privacy and more spaciousness heretofore lacking. A larger cabin door opens down and contains built-in stair-steps, eliminating the use of a ladder. Up front, new-type doors to the cockpit allow more cabin roominess. As shown in the cutaway drawing, a built-in re-

Factory Data
Beechcraft E35 Bonanza

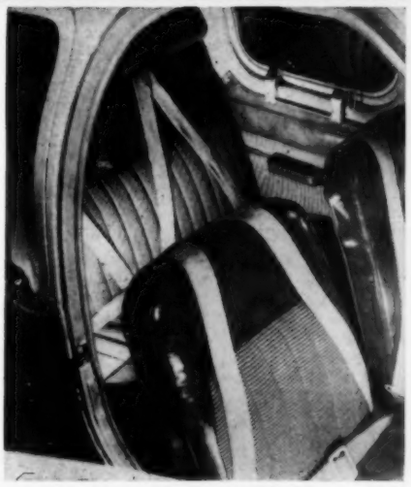
Power Plant: Available with Continental E-225-8 rated at 225 hp. at 2,650 rpm. for take-off, max. permissable continuous rating 185 hp. at 2,300 rpm., or with Continental E-185-11 rated at 185 hp. at 2,300 rpm., with max. for take-off 205 hp. at 2,600 rpm. (1 min.). Beech electric continuously variable-pitch propeller with aluminum blades.

	E-225-8	E-185-11
Top Spd., mph.	194	190
Cr. Spd., 146 hp., 11.4 gph., mph.	184 @ 8,000	—
Cr. Spd., 139 hp., 10.6 gph., mph.	—	180 @ 6,000
Cr. Spd., 120 hp., 10 gph., mph.	175 @ 8,000	175 @ 8,000
Rate of Climb, fpm.	1,300	1,100
Svc. Clng., ft.	19,000	18,000
Fuel Cap., gals.	39	39
Max. Range, 165 mph. @ 10,000 ft., mi.	775	775
Landing Spd., flaps, mph.	55	55
‡Take-off over 50-ft. obstacle, ft.	500	525
‡Landing over 50-ft. obstacle, ft.	227	227

(Following specifications same for both airplanes)

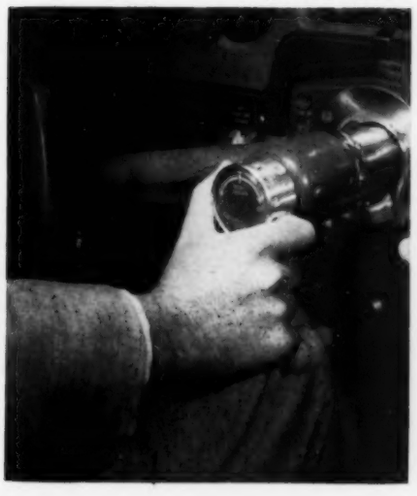
Gross Wt., lbs.	2,725
*Empty Wt., lbs.	1,675
Useful Load, lbs.	1,050
Wing Area, sq. ft.	177.6
Wing Loading, lbs./sq. ft.	15.2
Power Loading, lbs./hp.	14.6
Baggage Cap., lbs.	270

***Empty weight includes radio and residual fuel and oil, allowing 797 lbs. for people and baggage with full tanks. ‡Take-off and landing distances are for 10 mph. wind. NOTE: All performance is for gross weight at sea level unless otherwise noted.**



In addition to choice of 225-hp. or 205-hp. engines, new 175-184-mph. E35 Bonanza has new paint scheme (top), new contour seats with shoulder harness and more generous use of leather (above) and new aileron trim control on end of control column (below). Rear seat occupants have 3 ins. more knee room. Removable head rest for either front seat is standard as are tinted-glass windows. The new Bonanza's interior details and finish are outstanding. Price of 225-hp. version is $19,990 while 205-hp. version is $1,000 less at $18,990.

—(Beech Photos.)



Beech says over 100 changes have been made in its $69,950 6-place, 192-mph. B50 Twin-Bonanza, now in full production after 5 years of testing. Gross weight is 6,000 lbs., up 500 lbs. Note new window over wing trailing edge, new 3-step retractable step, long nose which contains extra baggage compartment and large nacelle covers which afford access to 260-hp. Lycoming engines.

—(Beech Photos.)

freshment-bar and improved seats add to the cabin's completeness.

The nose compartment has been changed completely to achieve several long-needed improvements. Ahead of the instrument panel is a removable forward section which simplifies instrument maintenance and installations. Space is provided for radio installations easily reached through removable covers and a glass nose-point encloses ADF loop equipment to reduce drag. An 80-gal. nose tank is standard equipment, boosting the airplane's range.

Added wing area, additional wing span and more efficient wing tips increase both the single-engine rate of climb and ceiling. These and speed are also helped by new paddle-type Hamilton Standard propeller blades.

Jet-type, short-length exhaust stacks add thrust, and new "power-pack" engine installations offer quick engine interchangeability and facilitate maintenance.

A longer tail-wheel strut raises the tail in a new landing angle which smooths out landings, while improved shock struts also contribute to this. Visibility while taxiing has been improved in the process.

Two Versions of Bonanza

The new "E" series of the 4-place Model 35 Bonanza is the fifth for

this high-performance airplane and is now available with 225 hp. which gives it 9 mph. more cruising speed than the 205-hp. version, cruising speeds being 184 and 175 mph. for the two airplanes. The accompanying table gives factory figures for both versions of the Bonanza. The 225-hp. version is priced at $19,990 while the 205-hp. Bonanza is priced $1,000 less at $18,990.

In addition to performance, the new Bonanzas are outstanding in craftsmanship, being noticeably improved in finish and detail. This especially applies to the interiors, which feature new contour seats with generous use of leather at wear points. Each seat is equipped with shoulder harness as standard.

Two significant new items are an aileron trim control on the Bonanza's control column and 3 inches additional knee room for rear-seat occupants. A new exterior paint scheme is used.

Factory Data
Beechcraft B50 Twin-Bonanza

Power Plants: Two Lycoming G0-435-C2 geared engines, each rated at 245 hp. at 3,100 rpm. and 260 hp. at 3,400 rpm. for take-off. Beech full-feathering propellers with aluminum alloy blades, hydraulically controlled continuously variable pitch with electric feathering.

Gross Wt., lbs.	6,000
Empty Wt., lbs.	3,940
Useful Load, lbs.	2,060
Top Spd., 2,500 ft., mph.	205
Cr. Spd., 65% hp., 10,000 ft., mph.	192
Rate of Climb, fpm.	1,450
Rate of Climb, 1 engine, fpm	300
Service Clng., ft.	20,000
Svc. Clng., 1 engine, ft.	7,000
Svc. Clng., 1 engine, 5,500 lbs., ft.	9,800
Landing Spd., flaps, mph.	69
Fuel Cap., gals.	134
Range, 192 mph., 10,000 ft., mi.	961
Take-off over 50-ft. obstacle, flaps, ft.	1,258
Landing over 50-ft. obstacle, flaps, ft.	1,375
Baggage Cap., lbs.	300
Wing Span, ft.-ins.	45-3
Length, ft.-ins.	31-6
Height, ft.-ins.	11-4
Wing Area, sq. ft.	277
Wing Loading, lbs./sq. ft.	21.66
Power Loading, lbs./hp.	12.25

***Empty weight includes 2 electric engine primers, 2 electric submerged boost pumps, 2 starters, 2 50-amp. generators, 2 fuel pumps, 2 vacuum pumps, 24-volt electrical system, 2 33-amp. batteries, electric motors for fuselage step, landing gear, flaps, heating and ventilating blowers, ARC R-11 range receiver, ARC R-13B tunable VHF receiver, ARC T11B 5-channel VHF transmitter, 2 cabin loudspeakers, 1 microphone, 1 headset, clock, magnetic compass, airspeed indicator, electric turn and bank, vertical speed indicator, altimeter, dual tachometer, 4 fuel gauges, dual manifold pressure, outside air temperature, dual cylinder head temperature, gyro horizon, suction gauge, directional gyro, 2 volt ammeters, 2 engine gauge units, 2 landing lights in wing, dome lights in cabin and in both baggage compartments, red and black instrument lights, map light, position and tail lights (flasher type), landing gear and flap position lights. NOTE: All performance is for gross weight at sea level unless otherwise noted.**

Twin-Bonanzas in Production

Beech has begun production for commercial deliveries of its B50 Twin-Bonanza, 6-place light twin powered by two Lycoming GO-435-C2 engines rated at 260 hp. each and equipped with constant-speed, quick-feathering Beech propellers. Fully equipped, it is priced at $69,950. It has not been available on the commercial market, except for 10 hand-built prototype versions, pending 5 years of flight and service testing and "time out" during military production at the factory.

Three of the new Twin-Bonanzas have already been delivered, with 6 deliveries for February and accelerated production scheduled to deliver this year over 100 to buyers who placed their orders early in 1951.

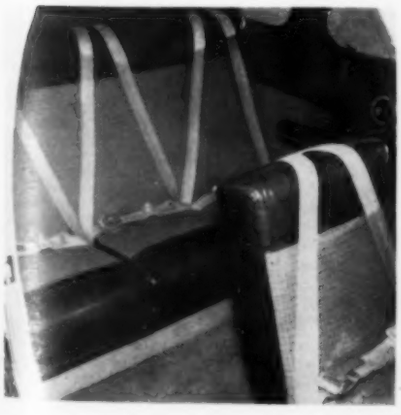
The B50 incorporates many changes over the original Twin-Bonanza, chief of which is a 6,000-lb. gross weight, 500 lbs. higher than previously. Of this, 447 lbs. go into increased useful load, which is now 2,060 lbs. This is broken down to include 804 lbs. for 134-gal. fuel capacity, 45 lbs. for 6-gal. oil capacity, and 1,211 lbs. for people and baggage with full tanks. The B50's empty weight of 3,940 lbs., as detailed in the accompanying table, includes radio and full equipment.

Performance, practically unchanged

(Continued on page 46)

Interior view at right shows Twin-Bonanza's 3-place front seat and large instrument panel with throw-over control column and panel-mounted control console. Note elevator, rudder and aileron trim controls. Large panel at left is for fuel selectors and gauges. Complete radio is standard, as is shoulder harness for six persons and elaborate cabin heating and ventilating system with mutiple individual outlets.

—(Beech Photos.)



Wing-tip fuel tanks and flat nacelles for 240-hp. Continental engines distinguish the Cessna 310. Factory figures include 205-mph., cruising speed, 1,750-lb. useful load and 7,500-ft. single-engine ceiling. —(Cessna Photo.)

Production starts on 205-mph., $49,950 Twin with first ships for Cessna's distributors

Cessna's New Model 310

FASTEST of the light twins is the distinction claimed by Cessna Aircraft Company for its new 5-place Model 310, powered by two newly-developed Continental O-470-B six-cylinder, flat engines rated at 240 hp. each.

First details and specifications of the new model were made public at Cessna's annual January sales meeting for distributors and dealers in Wichita, Kansas. The prototype had been flying during 1953 but Cessna maintained strictest secrecy over its details until the sales meeting.

A $49,950 price tag was in the range generally expected but the news that came as the big surprise was the factory's announced performance figures, as follows:

Top speed, sea level, over 220 mph.

Cruising speed at 8,000 ft., using 70 per cent power, over 205 mph.

Cruising speed at 10,000 ft., using 60 per cent power, over 190 mph.

Cruising speed at 10,000 ft., using 50 per cent power, over 175 mph.

Twin-engine rate of climb, sea level, 1,700 fpm.

Single-engine rate of climb, sea level, 380 fpm.

Single-engine service ceiling, 7,500 ft.

These performance figures are for a gross weight of 4,600 lbs. At this weight, Cessna says its Model 310 has a 1,750-lb. useful load which includes 5 persons, full tanks for 100-gal. fuel and 6-gal. oil supply, and 255 lbs. of baggage. Basic operating empty weight of only 2,850 lbs. includes full equipment except radio, and standard equipment includes constant-speed, full-feathering Hartzell propellers.

Certification by CAA had not been completed at the time of the meeting and therefore no rides were given. It was explained that only final approval of the new engines was holding up certification of the airplane. These engines are a more powerful version of the 0-470 Continental which powers the Cessna 180, developing 240 hp. each at 2,600 rpm. as compared with 225 hp. developed in the Cessna 180. The new version incorporates new type heads with added cooling fin area and slanted valves, high-lift cams and higher compression ratio.

Certification is expected to be completed by March, when Lee Renshaw, Cessna sales executive, will take the factory's No. 3 airplane on a nation-wide demonstration tour. No. 1 airplane, the prototype, has been used for flight testing and No. 2 airplane was displayed at the sales meeting. No. 3 is the first production-line Twin and was almost ready to roll off the line in late January.

Production plans have not been announced by Cessna. They hinge on several factors, chief of which is the volume of advance orders accompanied by cash deposits. Putting into production a newly-designed twin-engine airplane of the $50,000 price bracket is a multi-million-dollar project which Cessna is undertaking with conservatism.

40 to 70 Planes in 1954

Demonstrators for distributors have priority but it is possible for the first owner-customer to be flying a 310 by June, 1954. The factory has asked that each demonstrator remain in the hands of a distributor for at least 100 hours of operation, before being sold. The first demonstrator will go to the distributor who topped all others in 1953 Cessna sales. He is Mel Walston of East Alton, Illinois, who also had the largest quota of Twins available in the opening round of orders.

While no production plans could be announced at the meeting because the volume of advance orders could not be determined until later, it is possible

that 40 to 70 Model 310's will be delivered during 1954. The Cessna sales network includes some 70 domestic and foreign distributors and 140-odd dealers. Consensus among experienced distributors was that the Model 310's market may top 200 airplanes during 1954-55. Factory production is not likely to reach high gear until late in 1954, so that most of these would be delivered during 1955. The $49,950 price is guaranteed for each firm order, even though delivery may be in 1955.

High performance is the sales slogan for the new 310 but it is equally impressive with the completeness of its equipment and the thoroughness with which Cessna provided for its "dualization." Flight dependability with one engine inoperative and single-engine performance were primary design considerations in development of the new Twin.

Wing-Tip Fuel Tanks

Wing-tip fuel tanks are stressed by Cessna as a valuable safety factor. The first production-line commercial airplane with tip-tanks as standard equipment, the Cessna has no interior fuel tankage in wing or fuselage. There is said to be sufficient space in the wing for interior tanks, but the design philosophy behind the 310 was to move the fuel as far away from fuselage and engine nacelles as possible. These tip-tanks are of metal construction,

FACTORY DATA
Cessna Model 310

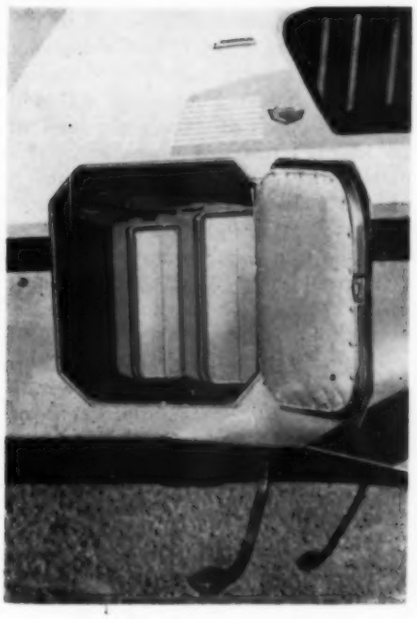
Power Plants: Two 6-cylinder Continental Model O-470-B engines with normal rating of 240 hp. at 2,600 rpm. each, equipped with all-metal, constant-speed, full-feathering Hartzell propellers.

Gross Weight, lbs.	**4,600**
Empty Weight, lbs.	**2,850**
Useful Load, lbs.	**1,750**
Top Speed, sea level, mph.	**Over 220**
Cruising Speed, 70% hp. at 8,000 ft., mph.	**Over 205**
Cruising Speed, 60% hp. at 10,000 ft., mph.	**Over 190**
Cruising Speed, 50% hp. at 10,000 ft., mph.	**Over 175**
Fuel Capacity, two wing-tip tanks, gals.	**100**
Range, 60% hp. at 10,000 ft., miles	**875**
Range, 50% hp., at 10,000 ft., miles	**1,000**
Rate of Climb, fpm.	**1,700**
Service Ceiling, ft.	**20,000**
Single-Engine Service Ceiling, ft.	**7,500**
Single-Engine Rate of Climb, fpm.	**380**
Wing Span, ft.	**36**
Length, ft.	**27**
Height, ft.-ins.	**10-5**
Wing Area, sq. ft.	**175**
Wing Loading, lbs./sq. ft.	**26.2**
Power Loading, lbs./hp.	**9.6**
Baggage Compartment Capacity, lbs.	**200**

NOTES: CAA certification pending as of January 20, 1954. All performance is for gross weight of 4,600 lbs. and at sea level unless otherwise noted. Empty weight includes full equipment except radio. Standard equipment in empty weight includes 2 engine-driven vacuum pumps; 2 engine-driven fuel pumps; 2 electric fuel boost pumps; 2 electric primers; 2 engine starters; 24-volt electrical system with 24-volt battery; 2 15-amp. generators and regulators; gyro suction system; gyro horizon and gyro direction indicator; electric turn and bank; rate of climb; sensitive altimeter; air speed indicator; lighted magnetic compass; clock; dual electric tachometers; dual manifold pressure indicator; two engine gauge units for oil temperature, oil pressure and fuel pressure; two cylinder head temperature indicators; electric outside air temperature indicator; dual fuel gauge; heated stall warning indicator; ammeter; heated pitot head; flap position indicator; 20,000-BTU Stewart-Warner cabin heater with thermostat; windshield defoggers; one red instrument light on rheostat; two ultra violet instrument lights with rheostat; map light with rheostat; two dome lights; two sun visors; rear window curtains; bagaage compartment light; fuel selector light on rheostat; position lights and blinker, and landing light in left wing.

Cessna designed its new Twin around short wing area, span and length, capitalizing on high performance and single-engine capabilities. It has the same wing span and area of the 4-place, 145-hp. Cessna 170 and the 4-place, 225-hp. Cessna 180—36-ft. span and 175-sq. ft. wing area. With a 27-ft. length, the Twin is only 12 inches longer than the 170 and 180.

—(Cessna Photo.)



Interior arrangement, outside baggage door and assist step of new Cessna Twin are shown in these pictures. Note space between pilot and co-pilot seats, which have reclining backs.

—(Cessna Pictures.)

each with a rubber fuel bag of 50-gal. capacity. Since auxiliary tanks seem to be inevitable with most airplanes, the question arises as to where extra tanks would be installed on the 310. The answer, as we got it at the factory, is larger capacity in the tip-tanks. These can be made to carry more than the 50-gal. rubber bag now provides.

Normally, the left engine uses fuel from the left tip-tank and the right engine uses fuel from the right tip-tank. But cross-feed is also provided. Selector valves are located on the floor of the cabin between the pilot and co-pilot seats. No problem is seen in possible uneven distribution of fuel and its weight. We asked about it and the answer was: "The airplane trims out easily even with one tip-tank empty." They are filled by a man standing on the ground.

In addition to moving the fuel completely away from cabin and engine nacelles except for supply lines, the tip-tanks are described by Cessna as providing an important contribution to design by freeing wing space usually necessary for fuel so that the main wheels can be retracted into the wing rather than into the engine nacelles. This makes possible the flattest engine nacelles this observer has ever seen—greatest depth is only 21 inches. Drag reduction became significant when this small frontal area was achieved by Cessna and Continental Motors.

Another major factor in the use of tip-tanks is their spill-plate effect, which fences in the airflow and cuts down on vortex drag. The effect on lift is that of higher aspect ratio despite the Cessna's shortened span. Tip-tanks should also offer simpler wing construction.

It is interesting to note that the 310, with a 4,600-lb. gross weight, has exactly the same 175-sq. ft. wing area as the smaller 2,200-lb. Cessna 170 and 2,550-lb. Cessna 180. Thus its wing loading is 26.2 lbs. per sq. ft., as compared with only 12.6 lbs. per sq. ft. for the 145-hp. Model 170 and 14.6 lbs. per sq. ft. for the 225-hp. Model 180. In power loading, the figures are 9.6 lbs. per hp. for the 310, 15.2 lbs. per hp. for the 170 and 11.3 lbs. per hp. for the 180. Pilots who have gotten a kick-in-the-pants from the 180's acceleration will certainly get a boot from that of the 310.

The Twin's lightness in empty weight indicates that Tom Salter and his associates in Cessna's engineering department have accomplished much in new design. It is extremely clean aerodynamically and the factory's performance figures confirm the appear-

Greatest depth of small engine nacelles is only 21 ins. on Cessna Twin. Note twin exhaust augmentor tubes. Main wheels retract into wing near fuselage. Props are constant-speed, quick-feathering, all-metal Hartzells.

—(Cessna Photos.)

ance made by its racy lines. Nothing sticks out anywhere on the Model 310. Antenna for the radio transmitter is located inside the plastic leading edge of the tail fin, for example.

Dual stainless steel exhaust augmentor tubes, one for each bank of three cylinders, extend out of the engine nacelles atop the wing. These squarish tubes eliminate the need for cowl flaps by providing an exhaust pumping action which pulls a large volume of cooling air through the nacelle even when running up the engine on the ground. Both exhaust gases and cooling air enter the tubes behind the cylinders. A secondary benefit from their use is added thrust from exhaust jet effect.

Hartzell all-metal, constant-speed, full-feathering propellers are standard equipment on the 310 and contribute significantly to its performance through their efficiency and their simplicity of operation. For feathering, the propeller control on the cockpit pedestal is pulled rearward past the idle position. Feathering is instantaneous.

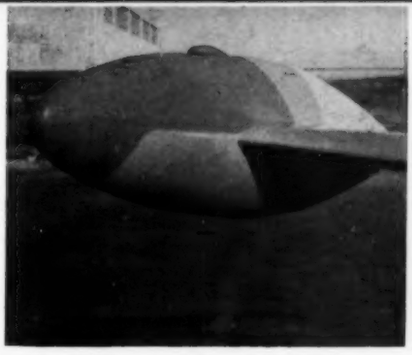
Electric Gear and Flaps

Tricycle landing gear and split-type flaps are electrically operated. The flaps have a 45-degree travel. When extended 15 degrees, they produce a small amount of lift for use on takeoff, although the 310's excellent acceleration makes this use of flaps almost unnecessary most of the time. From 15 to 45 degrees the flaps produce drag for steep approaches without added speed. A flap position indicator is located on the instrument panel.

Cessna produces its own landing gear struts, having acquired this background in manufacturing some 6,000 twin-engine airplanes during World War II. The nose wheel retracts rearward and the main wheels retract inward into the wing, with doors fully enclosing the wheel wells. In case of electrical failure, the pilot can disengage the electric motor and easily actuate and lock the gear through mechanical linkage. If both electrical and mechanical systems are inoperative, the weight of the gear will lower it and heavy over-center springs will snap the gear into the down and locked position for landing.

Engine nacelles are low enough to the ground to allow for excellent maintenance access, placing the engines about waist high.

Radio installations are provided for by a rack located in the nose. Access is up through the nose-wheel well. It was said that mechanics have no trouble standing up inside this well and working on equipment.



All fuel is carried in 50-gal. wing-tip tanks on Cessna Twin. Tanks are secured to wing by four bolts. Navigation light is in tank nose. Several belly landings have been made in factory's prototype without damage to tanks.
—(Cessna Photos.)

The cabin of the 310 is about the size of the Cessna 195 cabin, with additional headroom. However, the rear seat is said to be 6 inches wider than that in the 195 and the inside cabin length is about 8 inches shorter than that of the 195. Five seat belts are provided. The two front seats are separated by a little aisle, large enough for front seat occupants to use getting in and out. The cabin door is located between front and rear seats, so that the pilot can load his passengers and enter last, latching the door himself, or can leave the cabin first to assist his passengers in leaving. The front seats not only slide fore and aft but are reclining for added comfort.

Up front, the pilot has a storm window of generous size. All electrical switches are located in a compartment on the sidewall left of the instrument panel. The panel has plenty of room for practically any combination of instrumentation, including dual gyros, dual ILS and four radios. This still leaves room for a generous map compartment on the right. The control

(Continued on page 44)

Cessna Sales Score More Gains

THE year 1953 was another big one for Cessna Aircraft Company. It delivered 1,432 commercial lightplanes as compared to 1,373 in 1952. Its 1953 deliveries included 663 Model 170's, 644 Model 180's, 123 Model 195's, 2 Model 140's and 2 Model 305-A's (research versions of its Army Bird Dog liaison design). Its commercial lightplane sales totalled $17.2 million.

Cessna's top ten distributors alone delivered about 30 per cent of the factory's output, and their volume, based on net factory billings, was about 27 per cent over the same figure for the preceding year. The "top ten" as reported by the factory, with dollar volume in hundreds of thousands of dollars, are as follows: 1. Walston Aviation, East Alton, Ill., $763.9; 2. Mid-States Aviation, Northbrook, Ill., $508.8; 3. Air-Oasis Co., Fresno, Calif., $504; 4. Great Lakes Airmotive, Ypsilanti, Mich., $480.7; 5. R. P. Bowman, Oakland, Calif., $475.1; 6. Yingling Aircraft, Wichita, Kans., $471.8; 7. Clinton Aviation, Denver, $367.1; 8. R. P. Hay, Pittsburgh, $339.4; 9. General Aviation, $333.4, and 10. Cruse Aviation, Houston, $332.3.

Cessna's annual sales meeting, with an attendance of close to 500 distributors, dealers and suppliers, was held in January at Wichita with Sales Manager Frank Martin and his staff conducting it on a "Money Bowl" theme, complete with a bevy of pretty cheer-leaders, a snappy brass band and plenty of pep talks. President Wallace expects 1954 to be as good as 1953 or better. ★ ★ ★

We lined up five Riley Twins for the flight party to Key West. They are shown above at Broward County International Airport, Ft. Lauderdale. Mr. and Mrs. Jack Barrett and their new Riley Twin are pictured below.
—(FLIGHT MAGAZINE Photos by the author.)

Going Places

By TOM ASHLEY

FOR a good time, what could be better than a little private air tour for a small group of flying friends in personal planes — especially if all the planes are the same kind? Jack Riley, who has put almost 50 Twin Navion Conversions into the hands of business fliers all over the country since he began turning them out late in 1952, suggested the idea deep in December. It didn't take more than a couple of cold fronts to get the junket under way on New Year's Eve.

First to join us was Jack Barrett of Sherman, Texas, a flying businessman who operates a grocery chain. He liked the idea the moment he heard it. "I can't leave for at least an hour, so wait on me," was Barrett's reply. "Incidentally, where are we going?"

Next on Jack's list was E. M.

Flying friends in Riley Twins enjoy a holiday junket to Florida and the Bahamas

(Tex) Anderson of San Antonio, Texas, past president of the National Flying Farmers Association. Like Barrett, Anderson had a new Riley Twin and was itching to go somewhere. Tex even had some suggestions when we told him Florida might be a good place to go. "I'll meet you in Mobile," he volunteered, "at 11:30 tomorrow morning."

As it turned out, we were at Mobile Airport the next day at 11:28, despite headwinds, but Tex wasn't. A private DC-3 got there about 5 minutes ahead of us and dumped into the lunchroom umpteen Oklahomans headed for the Orange Bowl football game and even after waiting our turn to eat Tex had not arrived. He did get word to us, though, saying he had left late but was on his way.

After watching good airport service in action at Jack Connors Air Service on the Mobile airport — he and his wife and their helpers put out top-notch service that includes rental cars and even emptying the ash trays in your airplane — we took off, leaving word for Anderson that we had gone ahead. We picked up the beach below Mobile and began to "feel" Florida as the wide curve of the Gulf of Mexico bent off to the right on our nose. Barrett swung out over the water in his Riley Twin but we held our course as he climbed. Before we knew it, Barrett was long gone. Farther along we heard him calling Cross City, Florida. We learned, through Cross City Radio's relaying of our messages, that he had picked up a good tail-wind on top of us and was high-tailing it on into Ft. Lauderdale non-stop from Mobile. We had stayed low despite the wind and wanted to go into Orlando to say howdy to Ed Nilson, now city aviation director there. In previous trips across Florida, we had been prone to rush things so as to finish before darkness. But now we had two engines purring on the Navion and could relax, regardless of the oncoming darkness.

What makes the Riley Twin is the use of a newly-developed Lycoming 4-cylinder engine rated at 150 hp. Two of these, with constant-speed, quick-feathering Hartzell propellers, give it 165-mph. cruise, 1,700-fpm. rate of climb and impressive single-engine performance including 300-fpm. rate of climb at sea level and a single-engine ceiling of better than 6,000 ft. This is at a 3,350-lb. gross weight, which gives the Riley Twin a useful load of better than 1,000 lbs., empty weight being 2,300 lbs. including full equipment except radio. At 165 mph., fuel consumption averages about 18.5 gals. per hour. Fuel capacity is 90 gals.

At Orlando, we found Nilson in good shape and the airport busy with Oklahomans flying to the Orange Bowl. This was the day before the big Oklahoma-Maryland game and Ed said everybody in Oklahoma must have had an airplane because there had been a steady stream of flying football fans headed for Miami.

Even without hurrying and after visiting with Nilson, we made it into Ft. Lauderdale just after dark. Despite head-winds all the way we had

Single-engine take-off in Riley Twin was photographed in Florida, showing lightly-loaded airplane about 6 ft. off the ground after run of less than 2,000 ft. Rudder became effective at 45 to 50 mph., and prop was feathered at 80 mph. just before pilot, Bruce Caldwell, allowed the Navion to fly itself off with cross-wind from the right. Small photo shows Riley Twin over ocean off Miami with one prop feathered. Below are Miami Beach and (bottom) Interocean Highway heading south to Key West.
—(FLIGHT MAGAZINE Photos.)

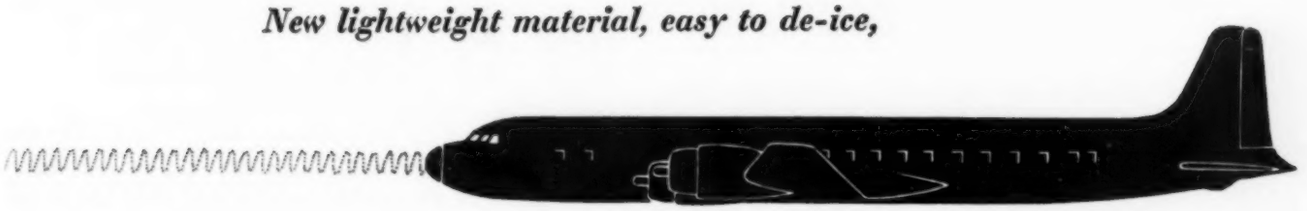
covered the 1,180 miles from Dallas in less than 8 hrs. of flying to average 150 mph. Jack Barrett did a little better, having picked up some help at higher altitude. Tex Anderson rolled in right behind us but he had more of a handicap because his course, originating in San Antonio, had put the wind more directly on his nose from the start.

After spending New Year's Day in Miami and at the Orange Bowl game, we selected Key West as a good place to spend Sunday with plenty of flying on the program. Two more Riley Twins joined our group, making us a flight of 5 Twin Navion Conversions. One belonged to Jack Kelly, onion grower from Jackson, Michigan, and the other was Harry Kornhiser's, down from Massachusetts.

One of the best things about Florida is that there is always somewhere to go. From Ft. Lauderdale, where our group stayed at Jack Riley's beautiful

(Continued on page 30)

New lightweight material, easy to de-ice,



protects radar instruments

without distorting the radar signal

Douglas "RADOME"

Problem, in airborne radar, to house instruments in a material which is easy to de-ice. Electro-thermal methods won't do. They affect the radar signal.

Douglas solves the problem with a new material, easy to de-ice. Rods of extruded wax are wrapped in fibre glass tape, impregnated with polyester resin. With multiple layers, Douglas builds the correct aerodynamic shape, then cures the resin at low temperature, and "sets" it under pressure. Next the temperature is raised and the wax melts away, leaving hollow passages through which hot air can be forced. No metal. No electricity. No distorted radar signals.

Discovery of a better way to house radar is further proof of Douglas leadership in aviation. Light, tough Radome expresses a basic Douglas philosophy—*farther and faster with a bigger payload.*

Enlist to fly in the U. S. Air Force

Depend on *DOUGLAS* **First in Aviation**

How to Get the Most Out of Your Cessna

Practically all Cessna owners today use their airplanes for the same reason — they need the most efficient and most flexible transportation available.

Hundreds of Cessna owners depend on the Authorized Cessna Service Stations listed below for their transportation needs — Authorized Cessna Service is their assurance that business planes are always ready to go, always in top condition for reliability, performance and comfort.

If you use your Cessna for important business needs, insist on Authorized Cessna Service at the Cessna Service Stations listed below. Their record for dependability and satisfaction is endorsed by the factory. Their long-established, factory-supervised Flat Rate Service guarantees every Cessna owner three important things:

1. **You get an accurately quoted price and time-required quotation based on hundreds of job studies covering virtually all your maintenance needs.**
2. **You get genuine Cessna parts and factory-trained workmanship.**
3. **You save money and time and we stand behind every job for your fullest satisfaction.**

More and more Cessna owners are recognizing the importance of these Flat Rate Service advantages.

To make the most of your Cessna's usefulness, visit the Authorized Cessna Service Stations listed below.

These progressive Cessna Authorized Service Shops offer flat-rate service.

Aircraft Sales Company
Meacham Field
Fort Worth, Texas

Aviation, Inc.
15th Street Air Park
Tulsa, Oklahoma

Champ's Flying Service
Municipal Airport
El Paso, Texas

Clinton Aviation Company
Stapleton Airfield
Denver, Colorado

Cruse Aviation, Inc.
Municipal Airport
Houston, Texas

Dal-Tex Aviation, Inc.
Highland Park Airport, Dallas, Texas

Hair Flying Service
Harding Field
Baton Rouge, Louisiana

Howard Aero Service, Inc.
San Antonio International Airport
San Antonio, Texas

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Southwestern Skyways, Inc.
New Municipal Airport
Santa Fe, New Mexico

Kenneth Starnes Aviation Service
Adams Field; Little Rock, Arkansas

West Texas Flying Service
Midland Airport
Midland, Texas

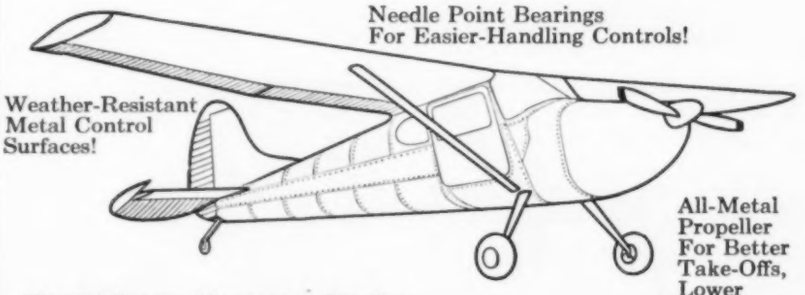
Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

ALL-METAL...RIGHT PRICE

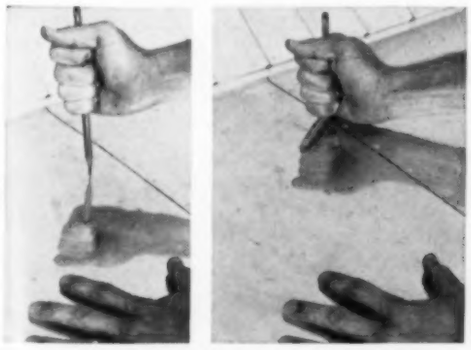
All-Metal Cessna 170 Offers Lowest Upkeep Cost—World's Safest, Smoothest Landing Gear For Only $8295

Now, every business pilot can afford to own a big, roomy *all-metal* airplane! For in the Cessna 170, you get the strength and safety of all-metal construction for only $8295—it's the only all-metal airplane in the low-price field! Offers you greater economy. Utility, too! Leave your ship out-of-doors in rain or snow, enjoy lower maintenance and the lasting beauty of all-metal at lowest cost. Cessna 170 is also the *only* low-priced airplane that offers you the world's safest, smoothest landing gear. It absorbs shock, smooths rough fields, simplifies cross-wind landings, requires no maintenance. See and fly the 1954 Cessna 170 — *undisputed best buy in the low-price field* — at your nearest Cessna dealer's today. He's listed in the yellow pages of your phone book. Or, for more information, write CESSNA AIRCRAFT CO., DEPT. FM-3, WICHITA, KAN.

All-Metal Features Protect Re-sale Value


Needle Point Bearings For Easier-Handling Controls!
Weather-Resistant Metal Control Surfaces!
All-Metal Propeller For Better Take-Offs, Lower Maintenance
Riveted Seams, Monocoque Fuselage For Greater Over-all Strength!

Cessna 170 AIRCRAFT COMPANY

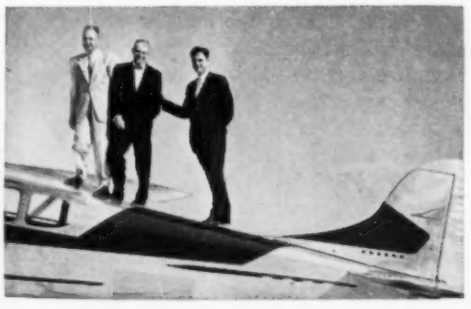


Puncture Proof in "Pencil Test"!

Simple demonstration shows how a Cessna's tough metal covering offers maximum protection against weather, abusive handling, sharp objects thrown up by the airplane's wheels.

Strength You Can See!

Three men stand on a Cessna 170 fuselage to show the strength of all-metal construction. It means a sturdier, safer cabin, lower maintenance cost, longer airplane life.



Keeps Its Youth for Years!

With occasional washing or polishing, a Cessna will keep its clean, factory-fresh beauty for years. Metal airplanes also bring top prices on a trade.

4 GREAT CESSNAS 170 180 195 310 THE COMPLETE AIR FLEET FOR EVERY BUSINESS NEED

GOING PLACES

(Continued from page 26)

home on the canal and at the Holiday Hotel on the beach, to Key West is just 175 miles, a lot of it along the beautiful Florida Keys and the Inter-ocean Highway.

The clouds were low when we got to the airport but within a couple of hours the sun was burning through and we headed down the beach. Of all nice things about flying, winging along a Florida beach on a sunny day in January is one of the finest. It was 80 degrees and Sunday and vacationers were out on the sands and in the surf in large numbers along beautiful Miami beach. As the toe of Florida trickled away and became a little strand of sand carrying the highway through the shallow Keys, the blue of the deeper Gulf Stream off Miami became a variety of greens. In little over 60 minutes we were landing at the southernmost tip of the mainland, coming in low over Key West's shallows where men were wading around catching huge sea turtles.

From Key West to Cuba is only about 90 miles but we had been there before and were not going to Havana this trip, preferring to fly east out to the Bahamas later. Cabs took our party into Key West and down to the docks from which the new movie, "Beneath the Twelve-Mile Reef," had been filmed recently. There were sixteen of us in the five Riley Twins but the crowded restaurant on the pier is used to large parties and took us right in. We have had sea food in lots of places but here we were introduced to stone crabs, which are better than the finest Maine lobsters when it comes to delicacies.

Returning to Miami, we veered away from the highway across the open water to have a look at the Everglades, which we have previously avoided in single-engine planes or crossed at altitude in four-engine aircraft. Just flying, going nowhere in particular and enjoying those two engines on the Navion for all they were worth, why not have a look at open water and the Glades? On one engine the Riley Twin flies not only successfully but very well and we had no apprehension whatever.

It was a good way to get used to taking the Navion over nothingness and a couple of days later, when we headed east over the wide reaches of the Atlantic Ocean for Nassau, those Lycoming 150's ran just as smooth as they did over Texas. No flying visit to Florida would be complete without going to the Bahamas or to Cuba and other islands, they are so near. This is especially the case when the visitor to Florida is in a twin-engine airplane.

Zack Mosley, whose syndicated comic strip, "Smilin' Jack," sells aviation to millions of newspaper readers, pencilled his famous character on the fuselage of Tex Anderson's Riley Twin when we visited Mosley at Stuart, Florida. That's Jack Riley at left, with Anderson at right.

—(FLIGHT MAGAZINE Photo.)

From Miami, Nassau is only about 190 miles but it is not all open water for nearby Bimini is only about 65 miles off the beach and comes up on the horizon before you realize it. This not only simplifies navigation but adds interest to an over-water flight. The ocean was like a lake, there being

(Continued on page 42)

Two of the Riley Twins at Oakes Airport in Nassau. At left below is a view of narrow Bimini, just 65 miles off Miami Beach. At right below is how Nassau looked from 20 miles out as we approached it from the west.

—(FLIGHT MAGAZINE Photos.)

FIRST

OF THE *Sapphire*

LINE OF NARCO PRODUCTS

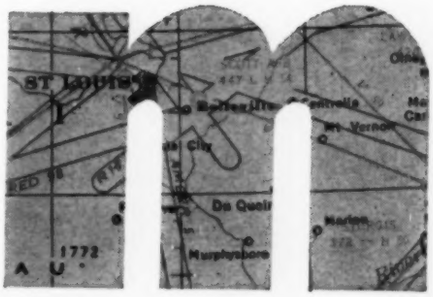
narco

Positive, continuous indication of position is now a reality with the VOR/DME system, greatly simplifying navigation for safer, easier, faster, more precise, more economical flight operations.

To implement this final link in CAA's common system of VHF navigation, Narco introduces its Model UDI-1 Distance Measuring Equipment for commercial and corporate aircraft use.

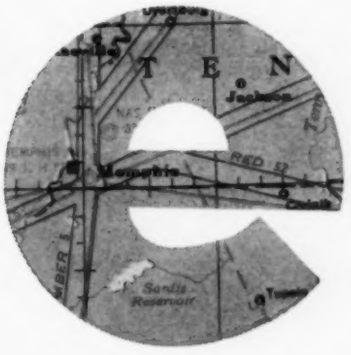
Perfected after years of exhaustive development under CAA/ANDB sponsorship, this new Narco DME is built to full air transport standards and has many exclusive features such as crystal-tuning.

This fine, new airline-tested DME, introduces Narco's new Sapphire line of navigation and communications equipment designed to the highest possible electronic standards unsurpassed for reliability and performance.



choose *narco* DME for these superior points . . .

- **Exclusive crystal tuning**
- **Unitized construction for efficient servicing**
- **Backed by a nationwide network of especially-equipped DME service centers**

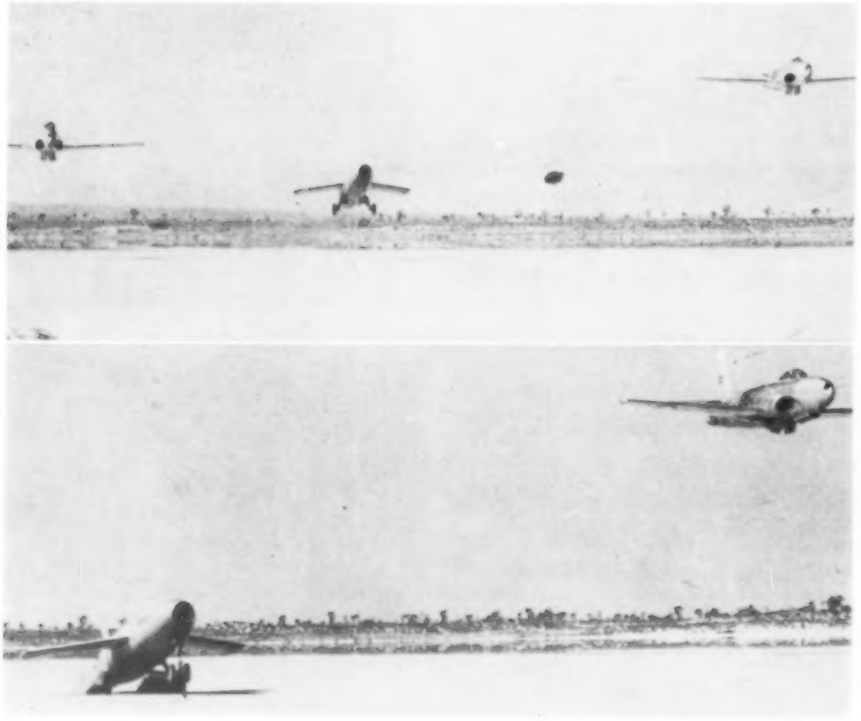


Weighing less than 33 pounds, Narco DME equipment consists of a remote unit mountable on a standard ½ ATR rack, a channel selector, and panel-mounted instrument which indicates distances in two ranges 0-200 miles and 0-20 miles.

narco

NATIONAL AERONAUTICAL CORP.
Ambler, Pennsylvania

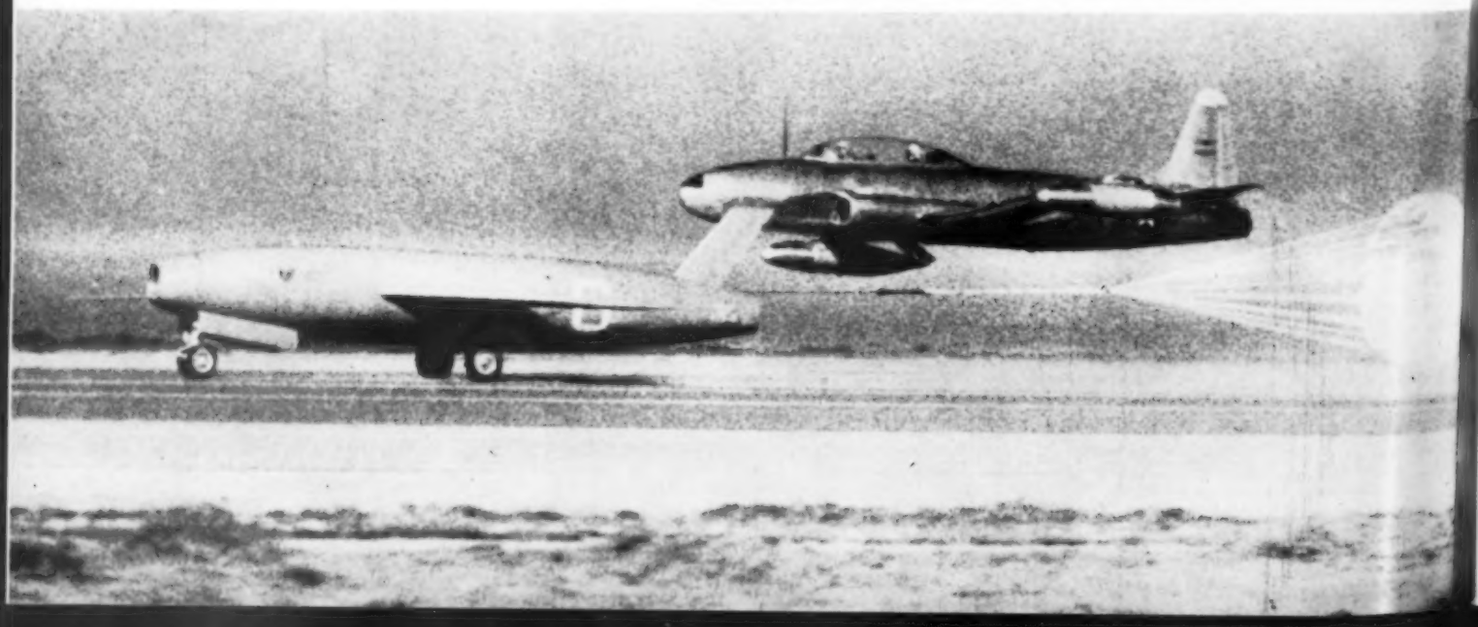
Chance Vought's jet-powered Regulus, only U. S. guided missile with landing gear for recovery and re-use, is shown above with its tricycle landing gear in the "down" position ready to land. A launching is shown at right with Jato units which are dropped as soon as the missile's internal jet engine takes over.
—(Chance Vought Photos.)



Landing of a training version of the Regulus is pictured above. Mother jets on its wing are 2-place control ships. Operator in mother jet uses radio to manipulate controls in missile for its letdown, approach and actual landing, during which a drag 'chute is popped to slow its ground run before the Regulus is brought to a stop.
—(Chance Vought Photos.)

Versatile Missile

THE action pictures on this page show how the U. S. Navy can recover for repeated training use its remarkable Chance Vought Regulus, a guided missile. A jet fighter plane in every respect except that it has no cockpit and is pilotless, the Regulus in war would carry an explosive warhead, being flown into enemy targets as a supersonic bomb launched from ground stations, submarines or ships. But with landing gear, it is operated to train missile crews and as a target drone. Controllers land the Regulus on runways and the speedy missiles have been reused as many as 15 times. ★ ★ ★



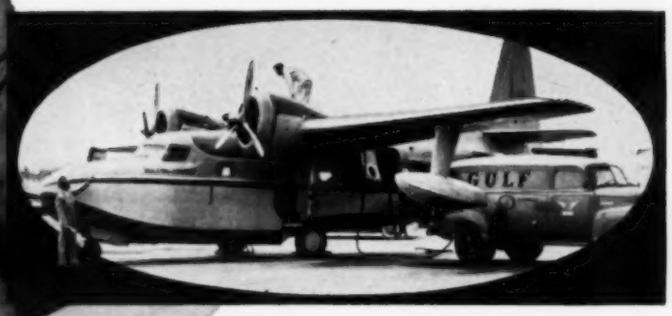
Ask the men with the most experience... ask BEN BRANSOM

Chief Pilot, Burrus Mills, Inc., Dallas, Texas

"16,000 flight hours teach you a lot," says Ben Bransom, "and they've taught me to depend upon Gulf aviation products. I've flown with Gulf from Alaska to the West Indies, from Canada to Mexico and in every state in the U. S. The consistent high quality of Gulf products has paid off in *better engine performance, lower maintenance costs.*

"That's why my first question upon landing at a strange airport is—'Do you have *Gulf* gas and oil?' "

Chief Pilot Bransom supervises fueling of a Grumman Mallard, latest addition to Burrus Mills' air fleet.



Men who fly a lot—fly with Gulf

Gulf Aircraft Engine Oil, Series-R

For radial engines or where a detergent oil is not desired. Approved by Pratt & Whitney and other radial engine manufacturers for all types of service. Retards sludge and carbon formation and retains its body at high-operating temperatures.

Gulfpride Aviation Oil, Series-D

For horizontally opposed and Ranger in-line engines. Minimizes ring- and valve-sticking, oil consumption, oil-screen clogging and plug-fouling. Users of this great oil have actually increased periods between overhauls as much as 100%.

Gulf Aviation Gasoline

Always "refinery clean" because Gulf Aviation gasoline dispensing equipment is equipped with advanced Micronic Filters.

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GULF
AVIATION PRODUCTS

AILERON Trim Control

THE NEWEST Beechcraft BONANZA ACCESSORY FROM

Aircraftsmen

The Satin finish of the Aileron Trim Control blends well with the interior of the Bonanza. Specify model and color of your Bonanza panel to obtain custom-matched dial.

- Adaptable to All Models
- Easily Installed
- No Connecting Cables
- Maintenance-free, Self-contained Unit

Other Bonanza Accessories by Aircraftsmen

Deluxe Curtains and Windshield Visors	$48.50
Engine Breather Oil Separator	$22.50
Oil Radiator Shutter	$25.00
Map Case and Twin Thermos Bottle Rack	$25.00
Cabin Ventilators	$19.75
10-Gal. Auxiliary Fuel Tank	$195.00

Now standard on all 1954 Bonanzas

$98.50 installed in all models (allow two hours installation).

See your Beechcraft Distributor or Aircraftsmen, Inc.

Aircraftsmen Inc.
Will Rogers Field
MElrose 8-6338 Oklahoma City, Okla.

JUST AMONG OURSELVES

(Continued from page 13)

tributors, dealers and maintenance companies, are the ones to shoulder the responsibility.

Fortunately we already have in existence an independent and completely competent agency for the task. Nearly everyone in aviation has heard of the Flight Safety Foundation, which has turned out a highly creditable and productive job in the field of aviation safety for many years. Its functions in and contributions to over-all aviation safety have been limited only by a limited budget. A parsimonious and near-sighted aviation industry has failed miserably to give it the kind of financial support it needs to increase its value and usefulness to aviation safety. Were it not for a small handful of philanthropic companies and individuals, principally the Rockefellers and a few major airlines, the Flight Safety Foundation would have died several years ago.

We have the choice of two paths. We can continue down the road we're now travelling and suffer a decline in airplane sales and utilization by U. S. businessmen. Or we can utilize an agency such as the Flight Safety Foundation to put the finger on the real causes and cures of accidents in an intelligent campaign geared to public education and accident prevention.

So step up to the window, buy your ticket and take your choice.

A GOOD IDEA

LAST month the Oklahoma Aviation Businessmen's Association put on a dinner meeting at Oklahoma A & M College for aviation businessmen and representatives of the daily and weekly newspapers. The idea was to get as many airport operators as possible to fly their newspaper editors and publishers into Stillwater to foster better relationships and understanding between the press and aviation interests.

We commend the Oklahoma Aviation Businessmen's Association and its president, Dick Batten, for this highly objective and profitable idea. Aviation people, particularly at the airport level, have never been too adept in dealing with the newspapers, yet their hometown newspaper is about the most important agency they have outside a satisfied customer.

All state aviation groups might well consider adopting the intelligent precedent established by the Oklahoma group in promoting and developing friendly and realistic press relations.

★ ★ ★

AIR REPORT

(Continued from page 7)

but the Texas unit is the first to replace the use of balloon observations.

NAVY CUTBACK IN CHANCE VOUGHT PRODUCTION OF F7U-3 CUTLASS FIGHTER has not affected production of A2U attack version of the twin-jet and although resultant lay-offs were expected to total about 3,000 workers, only 1,500 lay-offs had been made as of the end of January. Chance Vought payrolls in Dallas at that time totalled about 13,500 workers as compared with about 15,000 a month previously. . . . **ARTHUR SCHOENI,** former editor of "Naval Aviation News," is now on the Chance Vought public relations staff headed by **KEITH BAKER.**

CONVERSION OF SEVEN PISTON-POWERED MILITARY TRANSPORTS FOR TURBO-PROP POWER PLANTS is under way for USAF Air Research and Development Command. Two Boeing C-97's, two Lockheed C-121 Constellations and a Douglas C-124 will be powered with Pratt & Whitney T34 turbo-props, and two Convair C-131's will be powered with Allison T56 turbo-props.

MERGER PROPOSAL OF CONTINENTAL AIR LINES AND PIONEER AIR LINES has been complicated by a CAB order for consideration of Braniff International Airways in the merger and petitions by Central Airlines and Trans-Texas Airways for merger with Pioneer.

FIRST OF DE HAVILLAND AIR-

LITTLE-KNOWN OLDTIMERS in the Dallas-Ft. Worth aircraft manufacturing industry got recognition at a Dallas Ad League program cooked up by Al Harting, Southwest Airmotive idea man. Left to right are Walter Barling, who designed the giant Barling bomber for the Air Corps 30 years ago and who is now at Convair in Ft. Worth; Walter Skory, Chance Vought experimental worker, who helped Igor Sikorsky build his first flying boats and helicopters; Dayton (Slim) Alt, Bell Aircraft foreman at Ft. Worth, a pioneer service technician and key man in supersonic research; John Hawkins, Temco Aircraft design engineer and developer of original gas turbine power plants, and Harting.

Are you one of a select group of aerodynamicists sincerely interested in boundary layer control projects? The Aircraft Division of Fairchild offers a genuine creative opportunity to such men.

Reconnaisance aircraft . . . jet fighters . . . jet bombers and transports . . . as well as engineering advances on the world-renowned C-119 Flying Boxcar and soon-to-be-produced C-123 Assault Transport are coming from Fairchild. Diversified, stimulating assignments like these increase the inventive challenge to Fairchild's team of qualified aerodynamicists.

Gracious country living only minutes away from urban Baltimore or Washington . . . paid pension plan . . . an excellent salary with paid vacations . . . an ideal working environment . . . generous health, hospitalization and life insurance . . . and the many other benefits of a progressive company add to the pleasure of working with Fairchild.

You'll be investing wisely in a secure future if you take time today to write to Walter Tydon, Chief Engineer, outlining your qualifications. Your correspondence will be kept in complete confidence, of course.

☆ **BOUNDARY LAYER CONTROL**

ENGINE AND AIRPLANE CORPORATION
FAIRCHILD
Aircraft Division
HAGERSTOWN, MARYLAND

ECONOMY, SAFETY, COMFORT and PERFORMANCE...

a PIPER tradition

Throughout the years all Piper models have excelled in the true Piper tradition of **economy, safety, comfort and performance.** The widespread public preference for these outstanding qualities is evidenced by the fact that in 18 out of the last 20 years Piper has led in personal aircraft sales.

Today's Pipers with their speed, range and utility continue to fulfill the Piper pledge to give the Piper owner more for his flying dollar.

• Ask one of the firms listed to demonstrate how one of the Piper models can save you valuable time and money. These firms are prepared to serve all your aircraft requirements.

Arizona

ANDERSON AVIATION COMPANY, INC.
Sky Harbor Airport
Phoenix

Louisiana-Mississippi

LOUISIANA AIRCRAFT
Municipal Airport
Baton Rouge, La.

Oklahoma

SMYER AIRCRAFT SALES & SERVICE
Municipal Airport
Ponca City

Texas

BROWN FLYING SERVICE
Municipal Airport
San Antonio

JACK ROBINSON FLYING SCHOOL
Meacham Field
Fort Worth, Texas

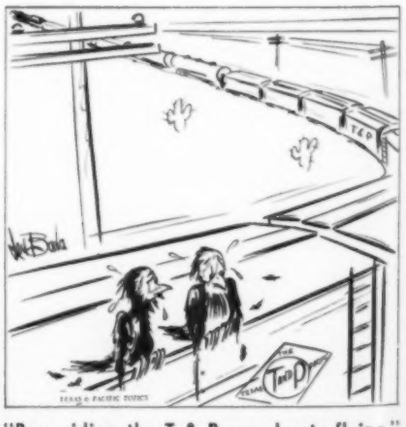
SOUTHWEST AIR RANGERS
International Airport
El Paso, Texas Midland, Texas

CRAFT'S NEW COMET SERIES 2 JET TRANSPORTS for BOAC, powered with Rolls Royce "Avon" engines rated at 7,000 lbs. thrust each, has flown 3,080 miles from Hatfield, England, to Khartoum in 6.5 hrs. to average 480 mph. and 2,913 miles from Khartoum to Johannesburg in 6 hrs. 17 mins. to average 460 mph. On each hop, the Comet 2 took off at 120,000-lb. normal gross weight carrying 13,500-lb. payload equivalent to 44 passengers with baggage. It is undergoing tropical trials in Africa for airworthiness certification.

BELL AIRCRAFT has delivered its first tandem-rotor HSL-1 anti-submarine warfare helicopter to the Navy for climatic tests at Eglin Air Force Base in Florida. Other HSL's are expected to be delivered to Navy installations before completion of the Florida tests. . . . **DOUGLAS AIRCRAFT COMPANY** has purchased a commercial Bell 47G helicopter and Bell Aircraft has sold three Model 47G's to the Spanish Navy.

ANDERSON, GREENWOOD & CO. has sold its last three AG-14 two-place pushers and doesn't plan to assemble any more in the near future, according to Ben Anderson, president.

OPENING OF A DALLAS FIELD SERVICE OFFICE AND APPOINTMENT OF A DALLAS DISTRIBUTOR have been announced by Bendix Radio Division of Bendix Aviation Corp. The factory office, in charge of S. A. Meacham, is located on Love Field in the Dallas Aero Service operation and will serve Texas, Oklahoma, Louisiana, Arkansas, Kansas and Missouri. The new Dallas Distributor, covering Texas, Oklahoma, Louisiana and Arkansas, is Dallas Avionics, Inc., also located on Love Field at Dallas Aero. It is headed by W. D. Price, Jr., veteran of 20 years in aviation communications and navigation equipment. A CAA Class I and II repair station without limitations, Dallas Avionics specializes in sale and service of Bendix communications and navigation equipment. The firm has 15 technicians whose combined aircraft communications and navigation equipment experience totals more than 90 years.



"Boy, riding the T & P sure beats flying."
—(Texas & Pacific Topics)

PICK Piper for Landing Ease...

In gusty, windy weather, you land with ease and confidence with the Piper Tri-Pacer—the plane that takes the skill out of flying. Your landings are almost automatic. Once the rear wheels touch you're on for good. The modern Hydrasorb air-oil shock absorbers cushion the touch down. There is no rebound. Even in cross winds your mind's at ease for the tricycle gear tolerates drift, automatically corrects for it, and rolls straight and true, virtually unassisted.

You taxi with confidence, too, even in winds of gale force because the level wings foil gusty air. And the nose wheel, linked to the rudder pedals, gives simple, positive steering. A single hand brake brings you to a swift, sure stop.

Little wonder the Tri-Pacer is America's largest selling four-place plane.

Tricycle landing gear has been incorporated in the design of every new American jet and airliner designed in the past 10 years. That's reason enough why you should insist that your plane have this modern safety aid; positive proof that the Tri-Pacer is the logical choice for you. Add these good reasons too,—simplified, interconnected controls; "honest" stall-resistant flight characteristics; over 120 mph cruise; over 575 mile range; quiet, comfortable cabin; "flight planned" panel for full instruments and radio equipment; Duraclad finish; separate front and rear doors; and cargo conversion in 15 seconds! All this is yours for nearly $2,000 less than any other production 4-place plane; less than half the cost of any other with tricycle gear.

Pick PIPER

PIPER Aircraft Corp., Dept. 2-F
Lock Haven, Pa.

☐ Please send brand-new full-color catalogue on new 1954 Tri-Pacer and "Learn as You Travel" Plan.

☐ If under 18, check for SPECIAL brochure with photos, drawings of all Piper planes.

Name _____

Street _____

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Lear Honors Top Distributors

Nine Lear distributors have won "Hundred Grand" gold awards for topping $100,000 in 1953 sales and 14 other Lear distributors have received gold plaques for 1953 sales in the $75,000-$100,000 bracket. In the picture above, George Otis, Lear vice president, presents a gold "sales Oscar" to Jack Baumann, manager of Santa Monica Aviation, top Lear distributor.

Airmen's Calendar

Feb. 21-23—3rd Annual Texas Agricultural Aviation Conference, Sponsored by Texas A. & M. College, Texas Flying Farmers and Texas Aeronautics Association, College Station, Texas.

Feb. 21-26—National Flying Farmers Association's Southwestern Air Tour, with overnight stops at El Paso, Phoenix and Las Vegas.

Feb. 24-26—Ohio-Indiana Agricultural Aviation Conference at Ohio State University. For program, write to Ohio Aviation Board, 501 Wyandotte Building, Columbus, Ohio.

April 12-14—Airport Operators Council 7th Annual Meeting, Tampa, Fla.

April 12-15—SAE Aeronautic Meeting, Production Meeting and Display, Statler Hotel, New York.

April 21-24—2nd Annual Student Paper Competition, Sponsored by Texas Section, Institute of Aeronautical Sciences, Melrose Hotel, Dallas, Texas.

May 5-7—Third International Aviation Trade Show, 71st Regiment Armory, New York.

May 16-19—American Association of Airport Executives Convention, Louisville, Ky.

June 5—Second Annual Transcontinental Air Cruise, Philadelphia to Palm Springs, sponsored by Philadelphia Junior Chamber of Commerce.

Helicopter Operators Meet at Bell Aircraft

Seventy-five commercial helicopter operators and guests from the U. S., Canada, France, Italy, Japan and Sweden held the Helicopter Association of America's annual meeting last month at Bell Aircraft Corporation's Ft. Worth plant for the second straight year.

Joseph G. Seward of Rotor-Aids, Ventura, California, was elected president. Robert L. Suggs, president of Petroleum Bell Helicopter Service, Lafayette, La., was elected treasurer, and William K. Cowan, president of The Helidusters, Tucson, Ariz., was named secretary. They are shown in the picture at right below, with Seward in the center, Suggs at left and Cowan on the right. Photo at top shows the operators at one of the business sessions, and the picture below shows some of the operators on a tour of the Bell plant. Left to right are Ricardo Olaran of Bell; Jean Moine of France, chief pilot of Fenwick, SA; James Ricklefs, president of Rick Helicopters; Gordon Rockefeller, Keystone Helicopters; Bell Vice President Harvey Gaylord; William Roth, helicopter insurance broker; W. K. Cowan, Helidusters; Carl Brady of Economy Pest Control and Tom Neyland, Albert Trostel & Sons.

—(Bell Aircraft Photos.)

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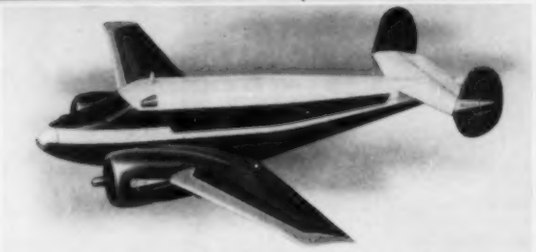
3 Great BEECHCRAFTS

to serve your every requirement in air transportation



THE SUPER 18 TRANSPORT

More performance, more useful load and more comfort make the new Super 18 a world leader. Cruising speed has been increased to 215 mph. Larger cabin has higher ceiling and more useable length for walk-around comfort. Big rest room. Built-in luggage racks. Larger door has built-in steps.

THE MODEL B50 TWIN-BONANZA

Full production is under way for Twin-Bonanza deliveries after 5 years of service-testing. The new B50 features over 100 improvements. Big useful load of 2,060 lbs. accommodates 6 people and baggage with full tanks for 961 miles range at 192 mph. cruising speed.

THE MODEL E35 BONANZA

Two versions of the 4-place Bonanza are available this year. One is powered with a 225-hp. Continental for 184-mph. cruising speed, the other with 205-hp. Continental for 175-mph. cruising speed. New aileron trim control. Luxurious new interiors.

J. D. REED CO. Inc.
SALES SERVICE
Beechcraft
DISTRIBUTOR
MUNICIPAL AIRPORT
HOUSTON, TEXAS

Owning a Beechcraft is a paying proposition. We invite you to let the J. D. Reed Company prove it with facts, figures and a demonstration. A phone call or letter on your company letterhead will bring complete details.

Close Inspection

BEECHCRAFT CERTIFIED SERVICE offers many extras to the aircraft owner — extras that do not appear on the service or maintenance bill. But these little extras mean a big saving through the year.

A good example of one of these extras is the CLOSE INSPECTION your airplane receives while it is being serviced on the ramp of a BEECHCRAFT CERTIFIED SERVICE STATION. Trained service personnel will spot — and call to your attention — any mechanism that is not functioning properly thereby eliminating costly repairs later.

BEECHCRAFT CERTIFIED SERVICE technicians, with their long Beechcraft experience and factory training, know your Beechcraft from front to rear. But most important, they take a personal interest — and pride — in seeing to it that your Beechcraft serves you well.

So when your Beechcraft requires service — bring it to one of the BEECHCRAFT CERTIFIED SERVICE STATIONS listed — where it's always *"in good hands."*

AIRCRAFTSMEN, INC.
Will Rogers Field
Oklahoma City, Oklahoma

ALAMO AVIATION, INC.
Municipal Airport
San Antonio, Texas

ANDERSON AIR ACTIVITIES
General Mitchell Field, Milwaukee, Wisc.
Truax Field, Madison, Wisc.

ATLANTIC AVIATION CORP.
Teterboro Airport, (25 minutes from Times Square)
Teterboro, New Jersey
Logan Airport, East Boston, Mass.

ATLANTIC AVIATION SERVICE
New Castle County Airport, Wilmington, Delaware

BUTLER CO., AVIATION DIVISION
Municipal Airport, Chicago, Ill.

CURREY SANDERS AIRCRAFT CO., INC.
Downtown Municipal Airport, Shreveport, La.

CUTTER-CARR FLYING SERVICE, INC.
West Mesa Airport, Albuquerque, New Mexico

GRAY AIRCRAFT SVC. CO., INC.
D. A. Cody, Service Mgr.
Love Field, Dallas, Texas

HUNTER FLYING SERVICE, INC.
Hunter Field, Cedar Rapids, Iowa

ROD MORE AVIATION SERVICES
Cuddihy Field, P. O. Box 556,
Corpus Christi, Texas

OHIO AVIATION COMPANY
Dayton Municipal Airport, Vandalia, Ohio

PACIFIC AIRCRAFT SALES CO.
Oakland Airport, Oakland, California

ROSCOE TURNER AERONAUTICAL CORP.
Municipal Airport, Indianapolis, Ind.

J. D. REED CO., INC.
Municipal Airport, Houston, Texas

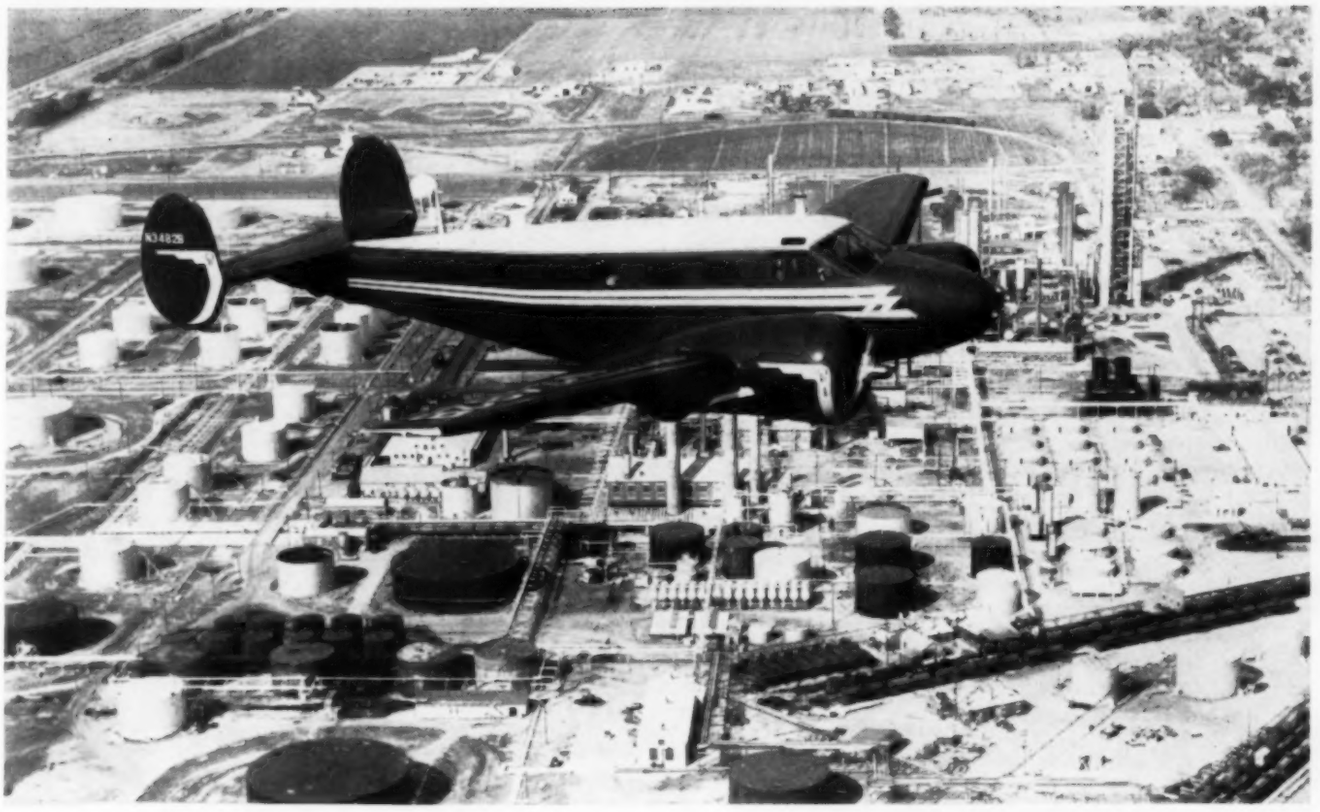
TOPEKA AIRCRAFT SALES & SERVICE
Municipal Airport, Topeka, Kansas

TRADEWIND AIRPORT CORP.
Tradewind Airport, Amarillo, Texas

TULSAIR DISTRIBUTORS, INC.
Hangar 5, Municipal Airport, Tulsa, Oklahoma

WINGS, INCORPORATED
Wings Field, Ambler, Pennsylvania
Philadelphia International Airport, Philadelphia, Pa.

To obtain the best service for your Beechcraft visit the Certified Beechcraft Service Stations listed.



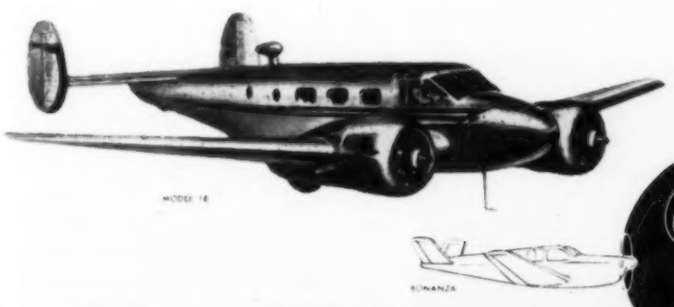
Beechcrafts mean more Business

Distant plants – distant branch operations – distant markets – are only hours away, instead of days, in a company-owned Beechcraft.

The time it takes key men to travel somewhere has long been the limiting factor of many a business. But when you put a twin-engine Model 18 Beechcraft on the company pay roll – *travel time is slashed* by as much as 75 per cent. This eight-place, 200 mile-an-hour plane is comfortable, safe and economical.

In the new battle to keep your company ahead of competition, your own Beechcraft transport will get your executive staff, technicians, and top salesmen *more places faster* than any other means of transportation.

The business expansion of the petroleum industry has been due in no small measure to the adoption of company-owned air transportation. Beechcrafts play a major part in helping petroleum producers – and Beechcrafts can help your company build a bigger, better business, too.



Typical costs, operating data on request from your Beechcraft distributor or from Beech Aircraft Corporation, Wichita, Kansas, U. S. A.

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

GOING PLACES

(Continued from page 30)

little or no wind. As a result, fishing vacationers in little white cruisers were out by the hundreds. Flying low, we could see they were making good catches, too.

We saw no air strip at Bimini but this little narrow island has miles of wide, beautiful beach. East of Bimini are more islands and Nassau came up right on our nose before we were 60 minutes out of Miami. We had been in the air 1 hr. 10 mins. when over Oakes Airport but delayed our landing while a U. S. Air Force C-47 went in on an emergency approach. We had heard him call in saying he had a passenger aboard suffering from loss of blood. After landing and taxiing up to the terminal building while the C-47 unloaded across the ramp at the military terminal, we were told by an attendant that the transport had brought in 22 injured soldiers, all being hurried to town in ambulances. They had been casualties in a truck collision at one of the many guided missile bases in the Bahamas.

Autos on this British island keep to the left and scared the daylights out of us on the way to lunch at the Prince George Hotel in the center of town. The open-air dining room is on a pier with water on both sides and with boats coming and going. Nassau has one of the world's most beautiful harbors with the bluest water we have seen anywhere. It is also one of the quietest cities we have ever visited and could have been extremely relaxing if we had spent a few days there. But we had visited Nassau only as a place to fly to, arriving at lunch and leaving in time to land back at Broward County International Airport in Ft. Lauderdale by 4:30 p. m., having arranged to meet the U. S. Customs agent there before he departed for the day. We landed right on the dot. It had been a beautiful flight over the water and our Riley Twins purred along with never a murmur.

Next day we took our group up the beach to Stuart, Florida, to say hello to Zack Mosley, author of "Smilin' Jack" in the funny papers and whom we consider one of civil aviation's greatest boosters. Zack's home and studio are just off the runway at Stuart's airport and he likes to have people fly in, so we always go to Stuart for an hour or two anytime we are in Florida. He has been selling aviation through the comics for 20-odd years and his millions of daily and Sunday readers have come to know private flying as it actually is. Zack has a dude Cessna 170 complete with everything including a Lear L-2 autopilot and he and his wife Betty and daughter Jill have made many a trip in it.

When we weren't flying, our group was enjoying other Florida activities such as horse racing, dog racing, jai-alai, boating and excellent restaurants. About all we didn't do was fish, which we're going to do next trip and nothing else. We were there a week and there was never a dull moment for lack of something interesting to do.

While the private plane traffic in and out of Miami is large this season — private aircraft outnumber private boats and carry more people in and out of the resort area than boats — it stands an excellent chance of growing into an even larger volume. This is indicated by the wide acceptance of light twin-engine aircraft.

The Riley Twin is more a personal type of twin-engine airplane than anything else. It retains the same excellent handling characteristics of the original Navion but has accomplished far more performance than was ever possible in the single-engine version. Consequently it offers plenty of transportation, for night flying and extended flying over difficult terrain and water become practical with two engines and good performance on either of the two in event one engine ever becomes inoperative. Miami's location in a far corner of the United States

These Facts Speak For Themselves

The *Beaver*

AERIAL SPRAY MODEL

FITTED WITH I. C. D. ROTOR BRUSH EQUIPMENT

THE JETTISON VALVES OPEN

LARGE 5" DIAM. FILLER NECK ON EACH SIDE

WIND DRIVEN SIMPLEX PUMP

WITH I. C. D. ROTOR BRUSH OR BOOM AND NOZZLE TYPE EQUIPMENT

1. GROSS WEIGHT 5100
2. SPRAY TANK CAPACITY . . . . 240 U.S. Gals.
3. EFFECTIVE SWATH WIDTH . . . . 90 Feet.
4. SPRAYING SPEED . . . . . 100 M.P.H.
5. ALTITUDE . . . . . 10 Feet.
6. FUEL CAPACITY . . . . . 95 U.S. Gals.
7. THE JETTISON VALVES WILL REDUCE 180 U. S. GALS. TO 18 GALS. IN SEVEN SECONDS.

We will gladly furnish more complete information

D3

THE DE HAVILLAND AIRCRAFT OF CANADA, LTD.
POSTAL STATION "L" TORONTO, ONTARIO

Y'ALL COME TO DENVER, says Francene Lontere while wiping somebody's windshield to show that transient aircraft receive good service at Vest Aircraft Company's Sky Ranch Airport. Bill Madsen, who made this picture and sent it to us, said all fliers are invited to be guests of Don Vest's Sky Ranch Cafe at dinner upon their first landing. Francene is one of the Dorothy Dorbin dancers.

has usually meant that darkness halted lightplane junkets into its area. If dusk didn't, then the swamps did. But the lightplane pilot in a Riley Twin can keep right on flying when sundown catches him at Tallahassee or Orlando or Jacksonville.

But the best way to enjoy the Miami area in lightplanes is the way we did — get on the phone and band together three or five planes of flying friends and take in all the sights. Going and returning, plus side trips, logged about 21 hours on the recording tachometers in the Riley Twins we took to Florida and back. Looking back over our notes, we covered between 3,100 and 3,200 miles of flying, averaging about 150 mph. between points, all in very comfortable and very quiet 4-place cabins and all in beautiful weather. The big point, too, was that we were away from our desk only 7 days and were never fatigued or rushed for time. ★ ★ ★

Continental has sparked aviation progress down through the years. Today, its outstanding family of gas turbines bids fair to rival even Continental's most noteworthy contribution of the past—the introduction of the A-40 engine which launched private flying on its era of greatest growth. . . . Opening of the second half-century of flight finds the broad engineering and production experience of the 52-year-old Continental family focused on turbines. Augmenting this is the specialized knowledge of a steadily-growing staff of leading technicians in this field. . . . Manufacture is already under way. Your requirements—conventional or otherwise—for shaft turbines, air generators or turbo-jets—can be met by C.A.E.

Engineers and others desiring careers in the field of small turbines are invited to write, giving background and type of work desired.

CONTINENTAL AVIATION & ENGINEERING CORPORATION

1500 ALGONQUIN AVE., DETROIT 14, MICHIGAN

SUBSIDIARY OF CONTINENTAL MOTORS CORPORATION

NATIONAL AVIATION TRADES ASSOCIATION LEADERS at its recent 14th annual convention are pictured above. At top left, Frank Shelton, new president, and Dave Finger, treasurer. Pretty girl is Winona Cox of Dallas, Southwest Airmotive's "Facts and Figures Girl," who was "Miss NATA." Group in top photo are officers of the National Air Taxi Conference. Left to right are Norm Larson, Los Angeles; William Lotzer, Milwaukee; Guy Miller, Pittsburgh; Richard Washburn, Charlotte, and Walter Laudenslager, Red Bank, N. J. Group in lower photo are leaders in aerial applicator field who addressed the meeting. Left to right are Alexander Williams, Shell Chemical Co.; A. L. Baxter, Central Aircraft of Yakima, Wash.; Fred Weick, Texas A. & M.; Tom Ferguson, NATA vice president for agriculture, and Dr. J. C. Chamberlain, USDA.

NEWS IN AERO COMMANDER SALES includes return of O. B. Callan (left), to Chicago as sales manager of National Aero Sales, Aero Commander distributor, and the factory's appointment of Newport Air Park, R. I., as distributor with Robert F. Wood (right, above) in charge. Wood has developed Newport Air Park into one of the nation's finest privately-owned aviation facilities. Callan, back in Chicago, has been in aircraft sales for 25 years and was formerly sales manager of Beech Aircraft.

Associated Radio

CARL FOX
TONY AGUILAR
LEE LANFORD

LOVE FIELD • DALLAS

ASSOCIATED RADIO is Distributor for **COLLINS** Dealer for **ARC** and **BENDIX**

CESSNA'S NEW TWIN

(Continued from page 23)

pedestal at the center of the panel has quadrant throttle, propeller and mixtures controls arranged transport-fashion, with elevator, rudder and aileron trim controls. Multi-vent cabin ventilation and heating is provided with individual outlets.

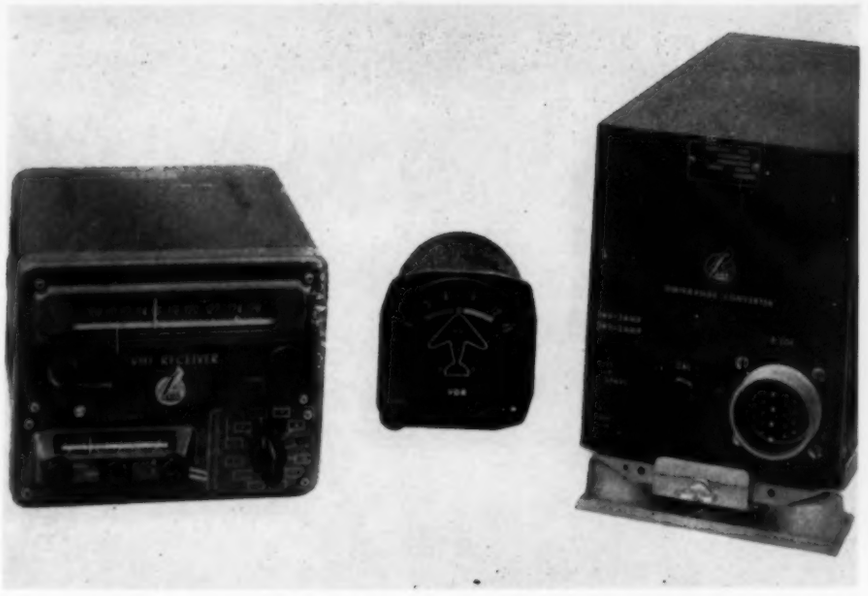
A large baggage compartment behind the rear seat has an outside door and can be reached from the cabin in flight. Atop this compartment is a very large hat-throw shelf, measuring 46 inches wide and 31 inches fore and aft. Average depth between it and the headliner is 15 inches.

The nose-wheel is steerable up to 15 degrees from center through the rudder pedals. Beyond this, it will caster up to 55 degrees from center. The airplane can thus be turned almost within the width of its tread.

Dwane Wallace, Cessna's hard-working president, summed up his firm's accomplishment in the new twin-engine design by emphasizing the value of high performance as a safety factor and as an essential for greatly-expanded utilization of private airplanes.

"The industry has done more in the past 5 years to make flying safe and practical for the private owner than had been done in the preceding 45 years since the Wright Brothers first flew," Wallace said. In addition to the

24 LEADING WORLD AIRLINES HAVE SELECTED TURBO COMPOUNDS
Delta-C&S
has selected
TURBO COMPOUNDS
to offer greater speed and comfort through 16 states
and 7 countries with DOUGLAS DC-7's
CURTISS-WRIGHT
CORPORATION • WOOD-RIDGE, N. J.
World's Finest Aircraft Engines



NEW LEAR OMNIMETER system has a new 3-in-1 instrument of only 3⅛-in. diameter combining in one instrument left-right needle, to-from meter and rotatable course selector. At right are LTRA-6 VHF receiver-transmitter, the new meter head and system's shock-mounted converter and power supply. The system is available for 12 or 24-volt operation. —(Lear Photos.)

obvious advancement represented in flying characteristics and performance, he cited the meaning of modern aircraft radio developments for communications and navigation. "We can actually hear what somebody tells us on the radio," he said. "What this means is that we had been using the wrong frequencies all those years until VHF came along. In addition, some 450 omni range stations simplify our navigation and we can actually go where we want to go with extreme accuracy."

A history-maker as the first personal-type airplane to advertise a cruising speed above 200 mph., the Cessna 310 will add new meaning to personal aircraft values from a transportation standpoint. It will thus provide plenty of utilization for the flying businessman in scheduling trips at speeds of 200 mph. and more. This enhances the benefits inherent in twin-engine dependability and safety, for night travel and instrument flying become a practical reality when equipment such as the 310 is available. It was designed around single-engine performance and should demonstrate this performance convincingly. ★ ★ ★

at 9000 feet over Mexico City — on one engine

A HARTZELL Propeller Made it Possible

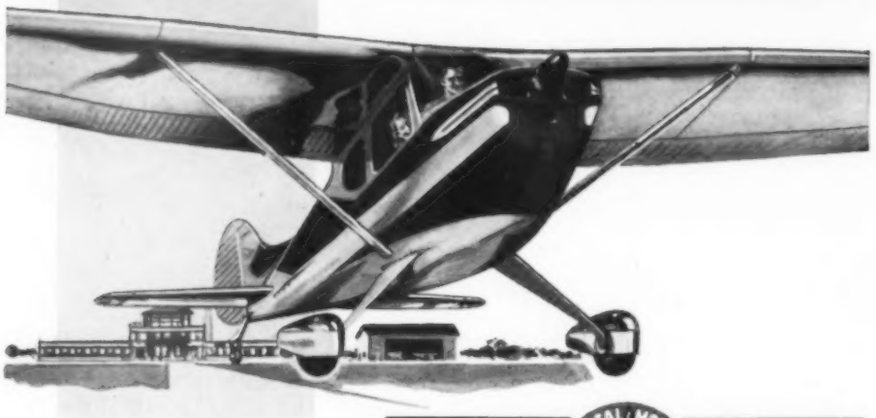
"The use of Hartzell full-feathering propellers is a prime factor in the Aero Commander's ability to meet this high standard of performance."

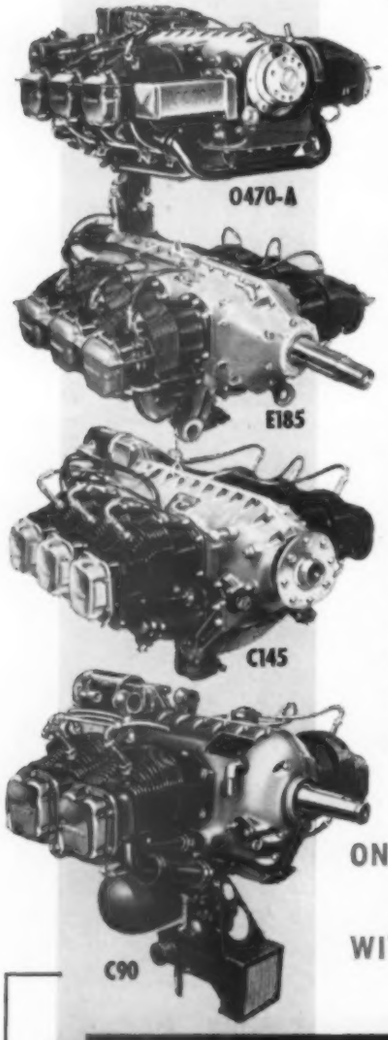
That was Aero's comment on the test, pictured at the right, in which an Aero Commander had no difficulty maintaining altitude with one propeller feathered while flying at 9000 feet over tropical Mexico City.

The Hartzell full-feathering, constant-speed propeller is the simplest model available, and the lowest priced. No auxiliary equipment other than a governor are required for its operation.

Write today for complete details on this propeller. If you fly a single-engine airplane, ask about the highly efficient Hartzell constant-speed propeller.

HARTZELL
PROPELLER COMPANY
DEPT. F **PIQUA, OHIO**





CONTINENTAL MOTORS — Powerful as the Nation — AMERICA'S STANDARD

...CONTINENTAL AIRCRAFT POWER

Any way you look at it, Continental is the undisputed leader when it comes to powering planes of utility types . . . and its leadership, in all the things which go to make up that quality, was never before so complete—so dominant—as it is today. More and more of the world's finest business and executive aircraft are flying with dependable Continental Red Seal power.

ONLY CONTINENTAL BACKS YOU WITH ESTABLISHED

Continental Motors Corporation
Aircraft Engine Division
MUSKEGON, MICHIGAN

NEW BEECHCRAFTS

(Continued from page 19)

despite the increased gross weight, includes 192-mph. cruising speed at 10,000 ft.; 1,450-fpm. rate of climb; 7,000-ft. single-engine ceiling at 6,000-lb. gross or 9,800-ft. single-engine ceiling at 5,500-lb. gross; 69-mph. landing speed with flaps; 961-mi. range without reserve at 192 mph. at 10,000 ft.; take-off distance of 1,258 ft. over 50-ft. obstacle and landing distance of 1,375 ft. over 50-ft. obstacle.

Two additional cabin windows, one on each side behind the rear seat, have been added to the Twin-Bonanza. All windows except the windshield feature tinted glass.

A new retractable step to facilitate boarding or leaving the airplane has three large steps on a longer extension arm, with the bottom step closer to the ground than formerly.

Now standard equipment is a new cabin heater system incorporating a 50,000-BTU combustion heater and a new air vent and ground air circulating system. Landing lights have been re-located in the wing. Shoulder harness for all six seats is standard equipment. Beech says that static tests of major structural components have been carried to a factor of 8 G's, this being in excess of CAA requirements. An 8G flight load factor is said to be equal to carrying a 19-ton bridge. The Twin-Bonanza has 25G safety harness and anchors for safety belts. The airplane's nose section with its baggage compartment are described as "energy absorbing" for cabin protection.

Standard equipment in the new B50 includes a communication system consisting of an ARC T-11B five-channel transmitter, an ARC R-13B VHF tuneable receiver and an ARC R-11 range receiver.

Optimism over the 1954 outlook prevailed at the Beech sales meeting and President Olive Ann Beech, thanking the distributors for commercial sales totalling over $17 million in 1953 including exports, emphasized the factory's renewed faith in commercial aircraft prospects.

Dwight Wallace, Beechcraft counsel, said the Super 18 had not been planned to be available until 1955, but that "through the efforts of Jack Gaty and his associates that schedule was accelerated a full 12 months to make the Super available now."

"Our plans for the future are even better," Wallace said. "Beech is hard at work on future models and programming for these new commercial Beechcrafts is scheduled to 1964."

★ ★ ★

Questions and Answers for Airport Operators

Aircraft Storage

WE were having coffee about 3:30 in the airport coffee shop and a question landed in our lap. We sat at a big table with a fixed-base operator, the local director of aviation, a businessman we'd never met, a fairly young pilot and an airport manager from down east who was just passing through. We were there because we like coffee and people in airport coffee shops any hour of the day and we were just passing through, too.

The conversation was desultory. Then we happened to ask the young pilot if he had ever bought that 140 we saw him admiring in El Paso some time back. That put the fat in the fire. He'd bought it, all right. And he liked it. But he couldn't understand why he had to tie it down outside for lack of storage space on his hometown airport. Mighty few airport managers haven't heard that question. Aircraft storage is an acute problem on many metropolitan airports, both in availability and price.

Everybody joined in the effort to answer. We listened. From all that flew back and forth we were able to draw some meaty points. We'll try to pass them along here as briefly as possible and confine them to metropolitan airports (we mean municipal fields in towns of a quarter million people or so).

Some Angles On The Problem

1. Large hangars help but are not the complete answer. There are too many diversified aero activities competing for large storage hangars for other than storage purposes. These are legitimate enterprises in civil aviation and engaged in maintenance, repair, modification and electronics work on larger aircraft in executive, scheduled carrier, non-scheduled flying and cargo operations.

Storage is only incidental with them. They need and must have the type hangar which will accommodate twin-engine aircraft. They use floor space but to it they add men and machines. From these they derive an income and fill an aviation need that in dollars and cents adds up to much

Satisfied Customers Are Our Best Recommendation

An interior view of the Delhi DC-3

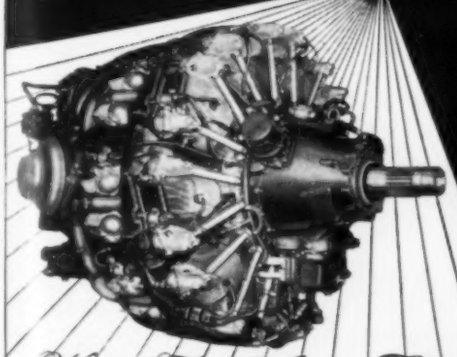
MR. DON BEELER
Chief Pilot
Delhi Oil Corp.
Dallas, Texas

Within the past four years we have accomplished 34 major maintenance and modification jobs on the business airplane fleet of the Delhi Oil Corporation.

W Emery
PRESIDENT

EXECUTIVE AIRCRAFT SERVICE, inc.
P. O. BOX 7307 • DALLAS, TEXAS • (GARLAND AIRPORT)

24 LEADING WORLD AIRLINES HAVE SELECTED TURBO COMPOUNDS



QANTAS
Selects TURBO COMPOUNDS
to forge closer links between the continents "down under"
with LOCKHEED Super CONSTELLATIONS

CURTISS-WRIGHT
CORPORATION • WOOD-RIDGE, N. J.

World's Finest Aircraft Engines

You're always going *your* way with

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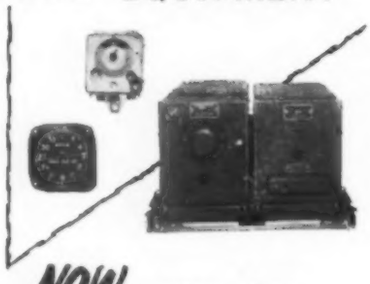
VHF NAVIGATION EQUIPMENT



NOW... pilots of medium and small type military planes, as well as private and executive aircraft, can have the safety and reassurance of OMNI reception. Compact, static-free and dependable, the Type 15-D gives you a visual signal to follow, no matter what your bearing may be to or from an omni station. Also provides use of both visual-aural ranges and amplitude runway localizers. Simultaneous voice feature included, and GCA voice reception. Tunable receiver to select any VHF aircraft frequency in band 108 to 135 mc. CAA Type Certificated. Thousands in service. Get the details.

ARC

Dependable Airborne Electronic Equipment Since 1928

Aircraft Radio Corporation

BOONTON NEW JERSEY

NEW AERO COMMANDER OWNERS TAKING RECENT DELIVERY at Oklahoma City are shown above. At left is Carleton Putnam, board chairman of Delta C & S Air Lines, who personally logs some 400 hrs. annually. In center photo are Marvin Parks and Herb Ackerman of Air Associates, which will base its Commander at Teterboro, N. J. At right is Charles E. Scripps, Scripps-Howard Trust chairman, who flies out of Cincinnati. —(Aero Design Photos.)

more than purely storage functions could generate.

So when a city has a hangar of that type available for lease, if the city submits it to bid, these operators can afford to bid more per square foot than those who would use the space only for storage of customer aircraft.

Likewise, even in purely storage hangars, the larger aircraft are more attractive as revenue producers than the smaller lightplanes. Lucky is the small plane owner who can find storage in a hangar with doors only 12 ft. high. He doesn't have to worry about DC-3 competition.

T-Hangars And Their Problems

Inevitably, then, the debate came around to the question of providing individual hangars for the small plane owners.

2. Certain hard and fast conclusions came out of the discussion on individual or T-hangars. This type of construction meets the needs of single-engine aircraft owners generally and is not likely to be subjected to the same demands that result in highly-competitive bidding as with large hangars. Conversely the normally moderate returns to be expected make T-hangars somewhat less attractive as investments.

The airport manager from out of town brought out the point that his airport had very little space remaining for buildings and that individual hangars are not economical of ground space. It was developed that 15 or 16 units per acre are about the best density you can achieve and still allow for freedom of entry.

The local aviation director brought out the belief that on most airports there are a few acres not suitable for large-hangar development either due to remoteness from activity or because of shape and size of the areas—all, he said, still within building areas as designated in the master plan.

He'd evidently put in some considerable study, for he discussed at length the advisability of making use of land now idle and not likely to be needed for larger structures. He brought out comparative rental values of land based on the same theories of land values that hold true in a city's business section, as opposed to fringe areas. He said one lone hangar on the far side of an airport wouldn't generate any comparable degree of business for a fixed-base operator to that

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available adjacent to the terminal or flight operators' areas. In fact, it was his contention that there are some tracts in the master plan building area which are only suitable for storage purposes or perhaps structures not drawing commercial business from the public.

On his airport additional storage space was needed, especially for small aircraft, some of which had been crowded out by the conditions cited earlier in the discussion. The thing that stopped him was the economics of the situation.

Venture Capital Vs Airport Funds

3. He said he had been unable to convince his city that it was in the normal province of the owning agency to provide the capital investment for this type of construction. As a result, he had turned his inquiry to the possibility of private capital and here he had bogged down. Venture capital added up the dollars and cents involved and came out with an answer in rental fees which would not be attractive to the aircraft owners who needed storage.

Roughly, these were the items considered in the appraisal:

(a). Ground rental (his city wanted $50 a year per individual T-hangar tract).

(b). The T-hangars in question cost $2,200 per unit in place with concrete floors.

(c). Maintenance.

(d). Insurance.

(e). Improvements in the form of access strips and surfacing.

(f). Taxes.

(g). Ten-year pay-out.

(h). Allowance for vacancy potential and uncollected rentals.

(i). Cost of supervision and collection.

(j). Profit.

No benefits would accrue to the investor from encouraging an increase in the ownership of aircraft because he recovered nothing from the sale of aviation fuel and lubricants or the services which would be supplied by shops, concessionaires and vendors of supplies. It was to private capital purely a rental venture.

The businessman spoke up saying such would seem to be a realistic approach by an investor and that the margin of safety required that type of evaluation. He did point out that the ground rental seemed high. It developed that the land in question had cost about $1,000 per acre years ago; it had created no revenue during municipal ownership; it had cost no money in improvements but had incurred annual expenses for maintenance by grass mowing; its value for rental purposes would be considered much lower than the areas along the main hangar line; at $50 per hangar plot it would develop a 75 per cent return on the original investment considering 15 units to the acre and that was a lot more than the hangar owner could develop on his investment on a percentage basis.

Views On The Airport

The eastern airport manager came up with the belief the hangar cost might be bettered. He had heard of some good construction recently at lower costs. He agreed with others at the table that a 10-year write-off made a reasonable and comparable rental hard to reach while a write-off of 15 to 20 years could be set if the investment were made from airport funds. It would be more realistic when measured against the life of the structures and a lower rental per unit would tend to reduce the potential vacancy rates.

We liked the young pilot's remarks when he finally spoke up. He expressed for the first time the consumer's viewpoint. He said he knew the tract under consideration. It was a well-drained grassy plot; he didn't need any surfacing on access strips; if he moved his aircraft to a private field for hangar space it would probably be a turf field and he didn't need a con-

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crete floor in the hangar.

One observation stood out. It was his belief that the owners of aircraft who were potential customers of such a storage area were in several classes, based on factors of income, type of aircraft and use of aircraft. He recommended that the director consider a scheme that envisaged a bank of hangars with doors and concrete floors for those who wanted and could pay for them, another bank of hangars with doors but no floors at a lower rental, and still another bank of hangars without doors or floors for those who wanted only minimum rentals but still desired protection for fabric and metal surfaces from sun, rain, hail and limited protection from wind.

He got some argument there, but he was able to point out some smaller public and private airports that had minimum-cost facilities such as he described.

We liked, too, the attitude of the fixed-base operator. He joined the pilot's argument. He said he couldn't ignore the revenue potential in the larger executive aircraft and that he wanted to see small aircraft storage space built since it was not competitive with him but did bring up the level of activity and his own sales revenues.

Then it was 5:30 p. m. and time to go. But before we left, the local director of aviation gave his conclusions. He was, he said, going to work up a new proposal based on municipal development and profit and see if he could put it over with all the ideas he had collected from this discussion.

Our own conclusions? Why, it was a mighty pleasant way to spend the tag end of an afternoon. ★ ★ ★

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